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Society for Developmental Biology 67th annual meeting

University of Pennsylvania, Philadelphia, Pennsylvania

July 25–July 30, 2008

Organizing Committee: Eric Wieschaus (Chair, SDB President), Phil Benfey, Robb Krumlauf, Arthur Lander, Susan Mango, Scott Poethig
Local Organizers: Dan Kessler, Ida Chow

Abstract Program Number in ***italics***

Program

Friday, July 25

1–9 pm	**Second SDB Boot Camp for New Faculty** Chair: Karen Bennett (SDB Professional Development and Education Committee Co-chair), University of Missouri-Columbia	**Biomedical Res Bldg II/III**

Saturday, July 26

9 am–12 noon	**Second SDB Boot Camp for New Faculty** continuation	**Biomedical Res Bldg II/III**
9 am–5 pm	**Satellite Symposium (non-SDB session)** **Transcriptional Control of Neural Development** Chair: Marthe Howard, University of Toledo College of Medicine	**Logan Hall G17**
1 pm–7 pm	**Meeting Registration** Posters and Exhibits set up	**Houston Hall**
7 pm–9 pm	**Presidential Symposium** **Developmental Biology in the 21st Century** Chair: Eric Wieschaus (President), Princeton	**Irvine Auditorium**
	7:00 *Imaging the cell lineages, motions, and signals that pattern the embryo.* **S. Fraser**, Caltech, Pasadena, CA, USA	
1	7:40 *Genome Meets Epigenome: Sequencing and Analysis of the DNA Methylome.* **J.R. Ecker**, R. Lister, R.C. O'Malley, J. Tonti-Filippini, C.C. Berry, A. Millar. Plant Biology Laboratory, and Genomic Analysis Laboratory, The Salk Institute for Biological Studies, La Jolla, CA, USA; ARC Centre of Excellence in Plant Energy Biology, The University of Western Australia, Australia	
	8:20 *Genes that control the rate of aging.* **C. Kenyon**, UCSF, San Francisco, CA, USA	
9 pm–11 pm	**Opening Reception and Poster Session I, with Exhibits**	**Houston Hall**

0012-1606/$ – see front matter
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Poster Session I themes: ***Education, Development and Evolution, Morphogenesis, Cell–cell Signaling, Intracellular Signaling Pathways, Cell Fate Specification, Cell Motility and Guidance, Cell Proliferation, Germ Cells and Gametogenesis, Fertilization, Stem Cells and Tissue Regeneration, Molecular Medicine and Development.***
Author presentation: Sun, July 27, 8–11 PM
See abstract listing at the end of the Program

Sunday, July 27

8 am–6 pm **Meeting Registration** **Houston Hall**

8 am–9 am **Funding Opportunities in Developmental Biology** **TBA**
Moderator: Ida Chow, SDB
Participants: Representatives of funding agencies

9 am–12:30 pm **Concurrent Symposia I**

Symposium 1: RNA, Localization, Translational and Regulation **Logan Hall G17**
Chair: Henry Krause (Canada Representative), University of Toronto

2 9:00 *Localized RNAs, localized translation, and developmental asymmetry.*
E. Gavis. Department of Molecular Biology, Princeton University, Princeton, NJ, USA.

3 9:30 *Switching from Repression to Activation: Post-Transcriptional Regulation of BMP2 Synthesis*
N.B. Rogers, S. Jiang. Biochemical and Molecular Biology, UMDNJ–NJ Medical School, Newark NJ, USA.

4 9:45 *Pattern Formation by Small RNA Signals.*
M. Timmermans, D. Chitwood, F. Nogueira, S. Madi. Cold Spring Harbor Laboratory, Cold Spring Harbor, NY, USA

5 10:15 *Bucky ball establishes animal–vegetal polarity in the oocyte and in the follicle cell layer in zebrafish.*
F.L. Marlow, F. Bontems, R. Dosch, M.C. Mullins. Department of Cell and Developmental Biology, University of Pennsylvania, USA; Department of Zoology, University of Geneva, Switzerland

10:30 **Coffee Break**

11:00 *P granules and translational control.*
J. Priess, F Hutchinson Cancer Res Ctr, Seattle, WA

6 11:30 *Large P body-like RNPs form in C. elegans oocytes in response to arrested ovulation, heat shock, osmotic stress, and anoxia and are regulated by the major sperm protein pathway.*
J.A. Schisa, M.C. Jud, M.J. Czerwinski, M.P. Wood, R.A. Young, C.M. Gallo, J.S. Bickel, E.L. Petty, J.M. Mason, B.A. Little. Central Michigan University Biology Department, Mt. Pleasant, MI; Johns Hopkins School of Medicine, Baltimore, MD; University of North Texas, Department of Biological Sciences, Denton TX

7 11:45 *RNA transport in the oocyte cytoplasm: How to get there from here.*
K.L. Mowry, J.A. Gagnon, J.A. Kreiling, T.J. Messitt, C.A. Pratt, Y.J. Yoon. Department of Mol. Biol. Cell Biol. and Biochem, Brown University, Providence RI, USA; Maine Medical Center, Portland, ME, USA; Division of Biology, California Institute of Technology, Pasadena, CA, USA

8 12:15 *Global analysis of mRNA localization reveals a prominent role in the organization of cellular architecture and function.*
E. Lecuyer, H. Yoshida, N. Parthasarathy, C. Alm, T. Babak, P. Tomancak, H. Krause. Donnelly CCBR, University of Toronto, Toronto, ON, Canada; Max Planck Institute of Molecular Cell Biology and Genetics, Dresden, Germany

Symposium 2: Neuronal Pathfinding and Identity **Logan Hall Terrace**
Chair: Cathy Krull (Midwest Representative), University of Michigan-Ann Arbor

9 9:00 *The Form and Function of an Olfactory Sensory Map in the Fly Brain.*
L.B. Vosshall. Laboratory of Neurogenetics and Behavior, Rockefeller University, New York, NY, USA

10 9:30 *Specification, migration, and differentiation of the left-sided parapineal organ.*
J.T. Gamse, C.D. Snelson, J.A. Clanton. Department of Biological Sciences, Vanderbilt University, Nashville, TN, USA

11 9:45 *Hypothyroidism induced deafness: defects in neuronal development and sensory cell function.*
M. Mustapha, Q. Fang, R.K. Duncan, Y. Raphael, D.F. Dolan, A. Giordimaina, T. Gong, M. Lomax, K.R. Johnson, **S.A. Camper**. Department Human Genetics, U. Michigan, Ann Arbor, MI; Department Otorhinolaryngology, U. Michigan, Ann Arbor, MI; Jackson Laboratory, Bar Harbor, ME

12 10:15 *The role of Hox genes in the specification of neural crest.*
S.R. Kadison, T. Iwashita, S.J. Morrison, C.E. Krull. Biol and Material Sci, University of Michigan, Ann Arbor, MI; Stem Cell Biol, HHMI/LSI, University of Michigan, Ann Arbor, MI

10:30 **Coffee Break**

13 11:00 *Extrinsic mechanisms regulate synapse formation.*
K. Shen, V.Y. Poon, M.P. Klassen. Department of Biology; Neuroscience Program, Stanford University, Stanford, CA

14	11:30	*Neuromancer-1 and Neuromancer-2 Regulate Cell Fate Specification in the Embryonic CNS of Drosophila melanogaster*. **S.M. Leal**, L. Qian, R. Bodmer, J.B. Skeath. Department of Biological Sciences, University of Southern MS, Hattiesburg, MS; Department of Genetics, Washington University Medical School, St. Louis, MO; The Gladstone Institute, San Francisco, CA; The Burnham Institute, La Jolla, CA
15	11:45	*The zebrafish unplugged/MuSK receptor controls pre- and postsynaptic development*. **M. Granato**. Department of Cell and Developmental Biology, University of Pennsylvania, Philadelphia, USA
16	12:15	*The floor plate gene, foxa2, is required for the generation and maintenance of midbrain dopamine neurons*. **R. Kittappa**, W.W. Chang, R.B. Awatramani, R.D. McKay. Laboratory of Molecular Biology, NINDS-NIH, Bethesda, MD, USA; Department of Neurology, Northwestern University, Chicago, IL

Symposium 3: Evolution and Diversity of Pattern **Irvine Auditorium**
Chair: Robb Krumlauf (*Developmental Biology* Editor-in-Chief), Stowers Institute for Medical Research

17	9:00	*Towards Understanding Evolutionary Diversification in Leaf Form.* **M. Tsiantis**. Department of Plant Sciences, University of Oxford, U.K.
18	9:30	*Widespread gene expression divergence between organisms with near-identical embryonic development*. **I. Yanai**, C.P. Hunter. Department of Molecular and Cellular Biol., Harvard University, Cambridge, MA
	9:45	*Gene regulatory networks and cell shapes in Ciona intestinalis.* **P. Lemaire**, Université de la Mediterranée, Marseille, France
19	10:15	*Non-equivalent in vivo function for mouse and zebrafish Hoxa3 Genes using gene targeting in mice*. **N.R. Manley**, L. Chen. Department of Genetics, University of Georgia, Athens, GA
10:30	**Coffee Break**	
20	11:00	*Stripes and spots: towards an integrative model for studying the evolution of form.* **D.M. Parichy**. Department of Biology, University of Washington, Seattle WA
21	11:30	*21 Dmbx1 genes are involved in growth and differentiation in zebrafish retinal and tectal development*. **L. Wong**, C. Kuo, V. Tropepe. Department of Cell and Systems Biology, University of Toronto, Toronto, ON, Canada
22	11:45	*Ancient evolutionary origin of the neural crest gene regulatory network*. **M. Bronner-Fraser**. Division of Biology, California Institute of Technology, Pasadena CA
23	12:15	*Transcriptional Regulatory Sequence Divergence Between Mouse and Bat Modifies Forelimb Length*. **C.J. Cretekos**, Y. Wang, E.D. Green, J.F. Martin, J.J. Rasweiler IV, R.R. Behringer. Department of Biological Sciences, Idaho State University, Pocatello, ID; Department of Molecular Genetics, University of Texas M.D. Anderson Cancer Center, Houston, TX; Genome Technology Branch and NIH Intramural Sequencing Center, National Human Genome Research Institute, Bethesda, MD

12:30 pm–2 pm **Lunch Break with posters and exhibits viewing** **Houston Hall**

2 pm–4 pm **Education Symposium: Publishing Science** **Irvine Auditorium**
Co-Chairs: Gail Martin (SDB Past-President) and Jasna Markovac (SDB Publications Committee Chair)

24 *Publishing Science*. **G.R. Martin, J. Markovac**. Department of Anatomy, UCSF, San Francisco, CA; Publishing and Editorial Services, San Diego, CA

Participating Speakers: Marianne Bronner-Fraser, Caltech; Beth Fischer, University of Pittsburgh; Robb Krumlauf, *Dev Biol*; Daniel Wainstock, *Dev Cell*; Jane Alfred, *Development*; Natalie Dewitt, *Nature*

2 pm–4 pm **Roundtable: Science Education Outreach by Scientists** **Logan Hall G17**
Moderator: Yolanda Cruz (SDB Professional Development and Education Committee member), Oberlin
Discussants: Marnie Halpern, Carnegie Institution of Washington; Steve Farber, Carnegie Institution of Washington; Jamie Shuda, Thomas Jefferson University; Diana Darnell, SDB LEADER Curator; Melinda Lowy, American Physiological Society; Leland Johnson, University of Maine Darling Marine Center

4 pm–4:30 pm **SDB Business Meeting** **Irvine Auditorium**
Chair: Eric Wieschaus, SDB President

4:30 pm–6:30 pm **Plenary Session I** **Irvine Auditorium**
Chair: Dan Kessler (Mid-Atlantic Representative), University of Pennsylvania

25	4:30	*The Fat Signaling Pathway.* **K. Irvine**, Y. Feng, H. Ishikawa, B. Kucuk, Y. Mao, H. Oh, S. Powell, C. Rauskolb, B. Reddy, D. Rogulja. Howard Hughes Medical Institute, Waksman Institute and Department of Molec Biol and Biochem, Rutgers The State University of New Jersey, Piscataway NJ

26	5:10	*Asymmetry and patterning in plant epidermal development.* **D.C. Bergmann**. Department of Biology, Stanford University, Stanford, CA, USA	
27	5:50	*Anterior–posterior asymmetry in beta-catenin localization during embryonic cell divisions in the spiral-cleaving polychaete Platynereis dumerilii.* **B.A. Bowerman**, S.Q. Schneider. Inst. of Mol. Biol, University of Oregon, Eugene, OR, USA	
6:30 pm–7:30 pm	**SDB Directors' Reception for Students and Postdocs**		**TBA**
6:30 pm–8 pm	**Dinner on your own**		
8 pm–11 pm	**Poster Session I, Exhibits and Mixer** Posters tear down at end of session		**Houston Hall**

Poster Session I themes: ***Education, Development and Evolution, Morphogenesis, Cell–cell Signaling, Intracellular Signaling Pathways, Cell Fate Specification, Cell Motility and Guidance, Cell Proliferation, Germ Cells and Gametogenesis, Fertilization, Stem Cells and Tissue Regeneration, Molecular Medicine and Development.***
Author presentation: **Odd board numbers** — 8–9:30 PM; **Even board numbers** — 9:30–11 PM
See abstract listing at the end of the Program

Monday, July 28

8 am–5 pm	**Meeting Registration**		**Houston Hall**
8 am–9 am	**Tutorial — Gene Tools on Morpholino oligos** Jon Moulton and Dan Arbogast, Gene Tools, LLC		**TBA**
8 am–12:30 pm	**Posters (Session II) set up**		**Houston Hall**
9 am–12:30 pm	**Concurrent Symposia II** ***Symposium 4: Signaling Pathways and Networks*** Chair: Tom Schilling (West Coast Representative), University of California Irvine		**Logan Hall G17**
28	9:00	*Regulation of Nodal Signaling.* **A. Schier**. Harvard University, Cambridge, MA	
29	9:30	*Chemokine signaling controls endodermal migration during zebrafish gastrulation.* **S. Nair**, T.F. Schilling. University of California, Irvine	
30	9:45	*The engineering of developmental regulation.* **A.D. Lander**. Department of Developmental and Cell Biology, University of California, Irvine; Center for Complex Biological Systems, University of California, Irvine	
31	10:15	*PDLIM5 is required in secreting cells for canonical Wnt signaling.* **J.A. White**, C.C. Wylie, J. Heasman. Division of Developmental Biology, Department of Pediatrics, Cincinnati Children's Hospital Research Foundation, Cincinnati, OH	
10:30	**Coffee Break**		
32	11:00	*Ephrin-B signaling in mouse development.* J.O. Bush, **P. Soriano**. Fred Hutchison Cancer Research Center, Seattle, WA	
33	11:30	*kerouac is required for proper cilia formation and patterning of multiple tissues.* **S. Weatherbee**, P. Ocbina, H. Alcorn, L. Niswander, K. Anderson. Yale University School of Medicine, New Haven, CT; Memorial Sloan Kettering, New York, NY, USA; University of Colorado Health Sci. Ctr., Aurora, CO	
34	11:45	*Regulation of C. elegans sex determination by proteolysis of the Gli protein TRA-1A.* **A.M. Spence**, M. Schvarzstein, N.G. Starostina, E.T. Kipreos. Department of Molecular Genetics, University of Toronto, Toronto, ON, Canada; Department of Cellular Biology, University of Georgia, Athens, GA, USA; Department of Developmental Biology, Stanford University, Stanford, CA, USA	
35	12:15	*Exploring the basis of functional redundancy between transcription factors.* **N.V. Kirienko**, J.D. McEnerney, D.S. Fay. Department of Molecular Biology, University of Wyoming	
	Symposium 5: Morphogenesis Chair: Joe Yost (Southwest Representative), University of Utah		**Irvine Auditorium**
36	9:00	*Combining Modern and Classical Methods to Study Morphogenesis Mechanisms in C. elegans.* **B. Goldstein**, J. Lee, D.J. Marston, G. Shemer, J.M. Sawyer, M. Roh, J.R. Harrell. Biology Department, University of North Carolina at Chapel Hill, NC	
37	9:30	*A quantitative analysis of imaging data provides insights into the coordination of cell movements during Drosophila gastrulation.* **A. Stathopoulos**, A. McMahon, W. Supatto, S. Fraser. Division of Biology, Caltech, Pasadena, CA; Beckman Imaging Facility, Caltech, Pasadena, CA	
38	9:45	*The genetic hierarchy that controls gastrulation in Drosophila.* S. Mathew, M. Rembold, **M. Leptin**. Institute of Genetics, Cologne University, Germany	
39	10:15	*The calcium channel β subunit is required for morphogenetic movements in gastrulation.* **D.M. Garrity**, A.M. Ebert, W.A. Horne. Department of Biology, Colorado State University, Ft. Collins, CO; College of Vet. Medicine, Cornell University, Ithaca, NY	

10:30 **Coffee Break**

40 11:00 *Gene regulatory networks governing morphogenesis.*
D.R. McClay, J.C. Croce, S. Wu, W.S. Beane, K.D. Walton. Department of Biology, Duke University, Durham, NC; Department of Biology, Vanderbilt University, Nashville, TN; Department of Developmental Biology, Harvard University, Boston, MA; Center for Organogenesis, University of Michigan, Ann Arbor, MI

41 11:30 *Live imaging reveals that the endoderm of the mouse embryo is generated by intercalation of extraembryonic and epiblast-derived cells.*
G. Kwon, M. Viotti, K. Hadjantonakis. Developmental Biology Program, Sloan-Kettering Institute, 1275 York Avenue, New York, New York 10021, USA; Neuroscience Program; Biochemistry, Cell and Molecular Biology Program, Weill Graduate School of Medical Sciences of Cornell University, New York, N.Y.

42 11:45 *Planar cell polarity and ciliogenesis in vertebrate embryos.*
J. Wallingford, B. Mitchell, P. Abitua, C. Kintner, J. Wallingford. MCDB and ICMB, University of Texas at Austin; Salk Institute

43 12:15 *Molecular regulation of collective epithelial migration during mammary branching morphogenesis.*
A.J. Ewald, A. Brenot, Z. Werb. Department of Anatomy, UCSF, San Francisco, CA

Symposium 6: Stem Cells and Differentiation **Logan Hall Terrace**
Chair: Blanche Capel (Southeast Representative), Duke

44 9:00 *The role of the piRNA pathway in stem cell self-renewal.*
H. Lin, H. Yin, E. Beyret, S. Findley, W. Deng. Yale Stem Cell Center, Yale University, New Haven, CT, USA; Current Address: University of Missouri, MO, USA; Current Address: Salk Inst., La Jolla, CA

45 9:30 *Regulation of ES Self Renewal and Pluripotency by Foxd3.*
P.A. Labosky, Y. Liu. Center for Stem Cell Biology, Cell and Dev Biol., Vanderbilt University, Nashville, TN

9:45 *Planarian germ cells.*
P. Newmark, University Illinois-Urbana, IL

46 10:15 *Gata3 regulates stem cell self-renewal and differentiation in the extraembryonic lineage during mouse development.*
A. Ralston, J. Draper, B. Cox, J. Rossant. Dept. of Developmental & Stem Cell Biology, The Hospital for Sick Children, Toronto, ON, Canada

10:30 **Coffee Break**

47 11:00 *Stem cell renewal and lineage selection in mammalian epidermis.*
F.M. Watt. CRUK Cambridge Research Institute, Cambridge, UK

48 11:30 *Fam20b and Xylosyltransferase1 (Xylt1) drive cartilage matrix production and inhibit perichondral bone during endochondral ossification.*
B.F. Eames, M.E. Swartz, C.B. Kimmel. Inst. of Neuroscience, University of Oregon, Eugene, OR

49 11:45 *Pluripotency and the onset of differentiation in the C. elegans soma.*
S.E. Mango, T. Yuzyuk, T. Fakhouri. Department of Oncological Sciences, Huntsman Cancer Institute, University of Utah, Salt Lake City, UT

50 12:15 *APC inhibits supernumerary tooth formation during embryogenesis and throughout adulthood.*
X. Wang, D. O'Connell, J.J. Lund, I. Saadi, M. Kuraguchi, A. Turbe-Doan, R. Kucherlapati, R.L. Maas. Department of Medicine, Brigham and Women's Hospital, Harvard Medical School, MA

12:30 pm–2 pm **Lunch Break with posters and exhibits viewing** **Houston Hall**

2 pm–4 pm **Postdoc Symposium Session sponsored by Genentech** **Irvine Auditorium**
Co-Chairs: Brian Eames, University of Oregon; Natalie Denef, Princeton; Stephanie Kadison, University of Michigan-Ann Arbor
Eight abstracts will be selected from SDB 2008 Regional Meeting winners and submitted abstracts, and will be announced in the Program Addendum.

Workshop 2: Genomics and Bioinformatics **Logan Hall G17**
Chair: Li-San Wang, University of Pennsylvania
Pre-registration required, limited to 50 people. Registrants are encouraged to bring own laptop.

4:30 pm–6:30 pm **Plenary Session II: *Awards Lectures*** **Irvine Auditorium**

4:30 *Life in Transition*. **James P. Collins**, NSF Assistant Director for Biological Sciences

5:00 **Liz Robertson**, University of Oxford, United Kingdom - E.G. Conklin Medal, introduced by Marianne Bronner-Fraser, SDB President-elect

5:30 **Igor Dawid,** National Institute of Child Health and Human Development, Bethesda, MD — *Developmental Biology*-SDB Lifetime Achievement Award, introduced by Eric Wieschaus, SDB President

	6:00	**Leland Johnson**, Augustana College Sioux Falls, SD and University of Maine Darling Marine Center, Walpole, ME — V. Hamburger Outstanding Educator Prize, introduced by Bill Wood, SDB Prof Devel and Educ Cmt Chair
51		*Mentoring in Two Centuries*. **L.G. Johnson**. Augustana College (Retired), Sioux Falls, SD; University of Maine Darling Marine Center, Walpole, ME

6:30 pm–8 pm **Dinner on your own**

8 pm–11 pm **Poster Session II, Commercial Exhibits and Mixer** **Houston Hall**

Poster Session II themes: ***Functional Genomics, Gene Regulation, Early Embryo Patterning, Patterning and Transcription Factors, Organogenesis, Late Abstracts***
Author presentation: **Odd board numbers** — 8–9:30 PM; **Even board numbers** — 9:30–11 PM
See abstract listing at the end of the Program.

Tuesday, July 29
8 am–5 pm **Meeting Registration** **Houston Hall**

9 am–12:30 pm **Concurrent Symposia III**
Symposium 7: Organ Systems in Vertebrate Development **Irvine Auditorium**
Chair: Deborah Yelon (Northeast Representative), New York University

	9:00	*Skin, scales and fins: Genetic analysis of the development of adult integumentary structures in the zebrafish*. **C. Nüsslein-Volhard**, Max Planck Inst, Tübingen, Germany
52	9:30	*The role of GPI-anchored proteins in chondrogenesis and cell polarity*. **M.J. Ahrens**, A.T. Dudley. Department of Biochemistry, Molecular Biology and Cell Biology, Northwestern University, Evanston, IL
53	9:45	*Organ size control in mice*. **B.Z. Stanger**. AFCRI and Department of Medicine, University of Pennsylvania, Philadelphia, PA
54	10:15	*Hoxb5b acts downstream of retinoic acid signaling in the forelimb field to restrict heart field potential in zebrafish*. **J.S. Waxman**, B.R. Keegan, R.W. Roberts, K.D. Poss, D. Yelon. Skirball Institute, NYU School of Medicine, New York, NY; Duke University Medical Center, Durham, NC
10:30	**Coffee Break**	
55	11:00	*Finding closure: visualizing the cell behaviors and uncovering the genetics of neural tube closure*. **L.A. Niswander**. Department of Pediatrics, University of Colorado School of Medicine, Aurora, CO
56	11:30	*A Hedgehog-Dependent Extra-Cardiac Lineage Required for Atrial Septation*. **A.D. Hoffmann**, M.A. Peterson, I.P. Moskowitz. Department of Pediatrics and Pathology, The University of Chicago, Chicago, IL
57	11:45	*The Vertebrate Segmentation Clock: Converting Time into Embryonic Pattern*. **O. Pourquié**. HHMI/Stowers Institute for Medical Research, Kansas City, MO
58	12:15	*A Role for kurly in Left–Right Patterning, Kidney Cysts, and Cilia*. **J. Schottenfeld**, R.D. Burdine. Department of Mol. Biol., Princeton University, NJ

Symposium 8: Gene Expression and Epigenetics **Logan Hall G17**
Chair: Mary Mullins (Secretary), University of Pennsylvania

	9:00	*Developmental gene control by Pol II elongation in Drosophila*. **M. Levine**, UC Berkeley, CA
59	9:30	*Identification and analysis of novel Spemann/Mangold organizer genes*. **H. Lickert, D**. Kinzel, I. Burtscher, D. Truembach, K. Boldt, M. Ueffing. Institute of Stem Cell Research; Institute of Developmental Genetics; Institute of Human Genetics, Helmholtz Zentrum München, Neuherberg, Germany
60	9:45	*Cell fate and pluripotency in the mouse embryo*. **M. Zernicka-Goetz**. Gurdon Institute, Cambridge, UK
61	10:15	*Histone deacetylase 1 (HDAC1) regulates histone acetylation, development, and gene expression in preimplantation mouse embryos*. **P. Ma**, R.M. Schultz. Department of Biology, University of Pennylvania, Philadelphia, PA
10:30	**Coffee Break**	
	11:00	*Molecular mechanisms of plant reproduction*. **U. Grossniklaus**, University of Zurich, Switzerland
62	11:30	*Roles of Neurogenin and Geminin in Vertebrate Neurogenesis*. **J. Lim**, K.L. Kroll. Washington University School of Medicine, Department of Developmental Biology, St. Louis, MO

63	11:45	*Distinctive Chromatin at Promoters for Embryo Development in Sperm.* **B.R. Cairns**, S. Hammoud, D. Nix, H. Zhang, J. Purwar, D. Carrell. HHMI and Huntsman Cancer Inst, University of Utah School of Medicine; Departments of Surgery, Obstetrics and Gynecology, University of Utah School of Medicine, Salt Lake City, UT
64	12:15	*β-Catenin-Mediated Histone Arginine Methylation Poises Organizer Genes for Expression Prior to the MBT.* **S.A. Blythe**, P.S. Klein. University of Pennsylvania, Philadelphia, PA

Symposium 9: Mitosis and Cell Polarity **Logan Hall Terrace**
Chair: David Raible (Northwest Representative), University of Washington

65	9:00	*Contact-mediated radial polarization of the early C. elegans embryo.* **J. Nance**, D.C. Anderson, J.S. Gill, R.M. Cinalli. Skirball Institute, NYU School of Medicine, NY
66	9:30	*Evolutionary plasticity of developmental mechanisms: evidence from the asymmetric second cleavage of the Helobdella (leech) embryo.* **D.C. Lyons**, X. Ren, D.A. Weisblat. UC Berkeley, Berkeley CA; University College, London, UK
	9:45	*Using the C. elegans embryo to dissect cell division mechanisms.* **K. Oegema**, UC San Diego, CA
67	10:15	*Spermidine and spermatid differentiation of Marsilea vestita.* **F. Deeb**, S.M. Wolniak. Department of Cell Biology and Molecular Genetics, University of Maryland, College Park, MD
10:30	**Coffee Break**	
	11:00	*Planar polarity and modeling.* **C. Tomlin**, UC Berkeley, CA
68	11:30	*Noncanonical Frizzled dependent signaling controls chondrocyte polarity during cartilage morphogenesis.* **A.T. Dudley**, Y. Li. Department of Biochemistry, Molecular Biology and Cell Biology, Northwestern University, Evanston, IL
69	11:45	*Polarising Migrating Tissues During Organogenesis.* **D. Gilmour**, P. Haas, G. Cakan, V. Lecaudey, J. Colombelli, E. Stelzer. Cell Biology and BIophysics, EMBL Heidelberg, Germany
70	12:15	*Crag is a novel regulator of epithelial architecture and polarized deposition of basement membrane proteins in Drosophila.* **N. Denef**, Y. Chen, S.D. Weeks, G. Barcelo, T. Schupbach. HHMI, Department of Molecular Biology, Princeton University, Princeton, NJ; Department of Biochemistry and Molecular Biology, Drexel University College of Medicine, Philadelphia, PA
12:30 pm–2 pm	**Lunch Break with poster and exhibit viewing.** **Posters and Exhibit tear down at end of session**	**Houston Hall**
2 pm–5 pm	**Plenary Session III** Chair: Eric Wieschaus (President), Princeton University	**Irvine Auditorium**
71	2:00	*Regulatory logic of neuronal diversity: Neuronal selector genes and selector motifs.* **O. Hobert**. Columbia University Medical Center, HHMI. New York, NY
	2:40	*Mechanisms of nuclear reprogramming.* **K Eggan**, Harvard University, Cambridge, MA
72	3:10	*The Mütter Museum of the College of Physicians of Philadelphia: An Introduction to its History and Resources for the Teaching of Human Developmental Biology.* **G.B. Grunwald**. Department of Pathology, Anatomy and Cell Biology, Thomas Jefferson University, Philadelphia, PA
73	3:40	*Fibrodysplasia ossificans progressiva (FOP) — How does one tissue become another?* **E.M. Shore**. Departments of Orthopaedics and Genetics, and the Center for Research in FOP and Related Disorders, University of Pennsylvania, Philadelphia, PA
	4:10	*Presentation of the Best Student Poster Competition Winners* **Dominique Bergmann** (SDB Junior Faculty Representative), Stanford
6 pm–?	**Closing Reception at Mütter Museum**	

Wednesday, July 30
Departure

8:30 am–5 pm	**SDB Board of Directors Meeting**

POSTER SESSIONS

Poster Session I **Houston Hall: Hall of Flags, Bodek Lounge, Class of 1949**

Viewing: Sat, July 26, 9-11 PM; Sun, July 27, 12:30-2 PM, 8-11 PM
Author presentation: Sun, July 27
Odd board numbers – 8-9:30 PM
Even board numbers – 9:30-11 PM
Abstract Program Number in Italics
B# = Poster Board Numbers

Poster Session I themes: Education, Development and Evolution, Morphogenesis, Cell-cell Signaling, Intracellular Signaling Pathways, Cell Fate Specification, Cell Motility and Guidance, Cell Proliferation, Germ Cells and Gametogenesis, Fertilization, Stem Cells and Tissue Regeneration, Molecular Medicine and Development.

Education

74	B1	Animations as supplemental resources for biology course. **J.D. Thatcher**. Structural Biology Division, WV School of Osteopathic Medicine, Lewisburg, WV, USA
75	B2	A seminar that introduces freshmen to biology research and researchers. **D.R. Phillips, A.W. Woodward, B. Bartel**. Department of Biochem. and Cell Biol., Rice University, Houston, TX, USA
76	B3	Engaging Undergraduates in the Scholarship of Discovery Using a *Drosophila* Deficiency Screen. **M.C. Bloch-Qazi**. Department of Biol, Gustavus Adolphus College, St. Peter, MN, USA
77	B4	Introducing undergraduates to Zebrafish Development and Genetics in a large Introductory Biology laboratory. **A. D'Costa, I. Shepherd**. Department of Biology, Emory University, Atlanta, GA, USA; Div.of Science and Tech., Georgia Gwinnett College, Lawrenceville, GA, USA
78	B5	Teaching the Toolkit: A Laboratory Series to Demonstrate the Evolutionary Conservation of Metazoan Cell-Signaling Pathways. **E.E. LeClair**. Department of Biological Sciences, DePaul University, Chicago, IL
79	B6	A Developmental Biology/Medical Ethics Undergraduate Learning Community: a novel approach to explore value-laden social and ethical issues related to developmental biology. **K.R. Douglas, D.E. Lee**. Biology Department, Augustana College, Rock Island, IL, USA; Religion Department, Augustana College, Rock Island, IL, USA
80	B7	Opportunities to present your successful teaching and outreach experiences at SDB meetings and website. **I. Chow**. Soc for Devel Biol, Bethesda, MD

Development and Evolution

81	B8	Evolutionary Mutant Models for Human Disease. **C. Albertson, W. Cresko, W. Detrich, J. Postlethwait**. Department of Biology, Syracuse University, Syracuse, NY, USA; Center Ecol. and Evol. Biol, University of Oregon, Eugene, OR, USA; Department of Biology, Northeastern University, Boston, MA, USA; Instit. of Neuroscience, University of Oregon, Eugene, OR, USA
82	B9	A Chimeric chromosome in *Oxytricha trifallax*. **H. Wubneh, Y. Zhou, L.F. Landweber**. Department of Mol. Biol. Princeton University, NJ 08544; Department of Ecol. and Evol. Biol. Princeton University, NJ 08544, USA
83	B10	Shared hunchback-like expression in feeding and locomotory structures suggests a single origin of larvae within lophotrochozoa. **R. Savage, A. Ferguson, K. Yandell, M. Drzyzga, K. Anderson, M. Lliguicota, A. Iyer, X. Zeng**. Biology Department, Williams College, Williamstown, MA 01267, USA
84	B11	Function and phylogenetics of the NR2E nuclear receptors in *C. elegans*. **C. Alvaro, K. Weber, J. Fiske-Baier, S. Clever, B. Wightman**. Biology Department, Muhlenberg College, Allentown, PA 18104, USA
85	B12	A novel Pax gene controls the formation of stem cells in the leech embryo. **M. Schmerer, R. Savage, M. Shankland**. Section of Mol. Cell and Dev. Biol., UT Austin, Austin, TX, USA; Biology Department, Williams College, Williamstown, MA, USA
86	B13	Function of vascular endothelial growth factor receptor of cephalopod, Idiosepius paradoxus. **M. Yoshida, K. Tsuneki, H. Furuya**. Department of Biol. Sci., Grad. Sch. of Sci., Osaka University, Osaka, Japan
87	B14	Molecular Characterization of Pea Aphid Facultative Parthenogenesis. **D.G. Srinivasan, G.K. Davis, D.L. Stern**. Department of Ecology and Evolutionary Biology, Princeton University, Princeton, NJ, USA
88	B15	Evolution of the *Drosophila* larval trichome pattern through cis-regulatory mutations at an enhancer of a single gene. **G.K. Davis, L. Sillers, P. Parikh, A. McGregor, V. Orgogozo, I. Delon, J. Zanet, D.G. Srinivasan, F. Payre, D.L. Stern**. Department of Ecol. and Evol. Biol., Princeton University, Princeton, NJ, USA; Centre de Biologie du Developpement, Toulouse, France
89	B16	Evolution of the *Drosophila* folded gastrulation gene. **R.E. Hoang, K. Dao, M. Eghbal, T. Tripp**. Department of Biology, Haverford College, Haverford, PA, USA
90	B17	Temperature-tolerance and protein stability assays of *Drosophila melanogaster*. **U. Marseille, J. Lutshumba, K. Venescar, K. Bullon, D. Decicco, M. Enechukwu, R. Pu**. Department of Biological Sciences, Kean University, Union, NJ, USA
91	B18	Analyzing the role of CtBP in *Drosophila* eye development. **B. Micheal, C. Hoang, A. Sandoval, J. Curtiss**. NMSU
92	B19	FoxO3 Regulation of Retinal Progenitor Cells in Vertebrate Eye Development. **M.E. Holly, H.M. El-Hodiri**. Int. Biomed. Sciences Grad. Prog., The Ohio State University, Col., OH, USA; Department of Mol. and Human Genetics, The Research Institute at Nationwide Children's Hospital, Columbus, OH, USA

93	B20	The PDZ Proteins, Dlg-1 and Scrib, are Required for Lens Fiber Cell Differentiation in the Mouse. **I. Yamben, R. Rachel, N. Copeland, N. Jenkins, A. Griep**. Department of Anatomy, UW-Madison, Madison, WI; Mouse Cancer Genetics, NCI-Frederick, Frederick, MD
94	B21	Functional and Evolutionary Characterization of the Glutamic Acid Decarboxylase 67 and Glycine Transporter 2 Promoter. **L. Boyd, C. Sipe, D. Teasley, M.S. Saha**. Department of Biol., College of William and Mary, Williamsburg, VA, USA
95	B22	Evolution of SoxB1 regulation and function: neural development from marine worm to frog. **C.D. Rogers, D.D. Cunningham, E.M. Silva Casey**. Department of Biol., Georgetown University, Washington DC, USA
96	B23	Function and Regulationof *Xenopus laevis* Sox21. **D.D. Cunningham, E.M. Silva Casey**. Department of Biology, Georgetown University, Washington DC, USA
97	B24	Development of the central catecholamine systems in a frog without a tadpole. **G.R. Ten Eyck, W.J. Jermakowicz, C.H. Summers**. Department of Basic Science and Craniofacial Biology, New York University, NY, NY, USA; Department of Cell and Developmental Biology, Vanderbilt University Medical Center, Nashville, TN, USA; Department of Biology and Neuroscience Group, University of South Dakota, Vermill, USA
98	B25	Small Molecule-Mediated "Phenotypic Engineering" Reveals A Role For Retinoic Acid In Anuran Gut Evolution. **S. Bloom, C. Infante, A. Everly, J. Hanken, N. Nascone-Yoder**. Department Molecular Biomedical Sciences, College of Vet Medicine, North Carolina State University; Museum of Comparative Zoology and Department Organismic and Evolutionary Biology, Harvard University, USA
99	B26	Conservation in a frog of the retinoic acid requirement for forelimb initiation. **R.P. Elinson, Z. Walton, S. Lee, K. Nath**. Department Biological Sciences, Duquesne University, Pittsburgh, PA, USA
100	B27	In Limb Development BMP and FGF Signaling Interact through Sproutys. **S. Underwood, T. Williams, Y. Mishina, M. Lewandoski**. Cancer and Developmental Biology Laboratory; NCI-Frederick, NIH, Frederick, MD, USA; Cell and Developmental Biology, University of Colorado Health Science Center, Auorora CO, USA; Laboratory of Reproductive and Developmental Toxicology, NIEHS, NIH, Research Triangle Park, NC, USA
101	B28	Building a marsupial neonate: evolution of the limb development program in opossum. **A.L. Keyte, T. Imam, M. Alonzo, T. Halbert, K.K. Smith**. Department of Biol., Duke University, Durham, NC, USA
102	B29	Evolution of Hox PG2 Gene Content in Teleosts. **A. Davis, J. Scemama, E.J. Stellwag**. Department of Biology, East Carolina University, Greenville, NC, USA
103	B30	Evolutionary developmental biology of teleostean pharyngeal arch specification. **P. Le Pabic, E.J. Stellwag, J. Scemama**. Department of Biology, East Carolina University, Greenville, NC, USA
104	B31	Investigating a role for trpm7 function in physiologic cation homeostasis. **M.R. Elizondo, D.M. Parichy**. Department of Biology, University of Washington, Seattle WA 98195; Graduate Program in Cell and Molecular Biology, University of Texas at Austin, Austin TX 78712, USA
105	B32	Molecular mechanisms underlying skeletal variation in zebrafish. **M.H. Connolly, B.K. Hall**. Department of Biology, Dalhousie University, Halifax, NS, Canada
106	B33	Fibroblast Growth Factor Signaling in Skeletal Evolution. **N. Rohner, M. Harris, M. Bercsényi, L. Orban, C. Nüsslein-Volhard**. MPI for Dev. Biol., Tuebingen Germany; University of Pannonia, Keszthely, Hungary; Temasek Life Sciences Laboratory, National University of Singapore
107	B34	Exploring the Developmental and Evolutionary Relationship between Cardiac and Blood/Endothelial Precursors. **A.C. Simões, T. Peterkin, R. Patient**. MHU, Weatherall Institute of Molecular Medicine, University of Oxford, UK.; PDBEB, Center for Neuroscience and Cell Biology, University of Coimbra, Portugal
108	B35	Targeted disruption of the Mohawk homeobox gene results in tendon defects in mice. **W. Liu, S.S. Watson, R. Schweitzer, R. Jiang**. Department of Biomedical Genetics and Center for Oral Biology, University of Rochester School of Medicine and Dentistry, Rochester, NY, USA; Shriners Hospital for Children, Research Division, Portland, Oregon, USA
109	B36	Persistent Expression of Pax3 in Neural Crest Causes Cleft Palate and Defective Osteogenesis. **M. Wu, J. Li, K.A. Engleka, B. Zhou, M. Lu, J. Plotkin, J.A. Epstein**. Department of Cell and Developmental Biology, University of Pennsylvania, PA, USA; Department of Microbiology, University of Pennsylvania, PA, USA
110	B37	Late Emerging Trunk Neural Crest Cells in the Turtle *Trachemys scripta* Revealed by DiI Injection and Neural Tube Organ Culture. **J.A. Cebra-Thomas, Y. Hu, J. Vogelsong, M. Yin, L. Gyi, A. Terrell, S.F. Gilbert**. Department of Biology, Millersville University, Millersville, PA, USA; Department of Biology, Swarthmore College, Swarthmore, PA, USA; Science Division, Friends Central School, Wynnewood, PA, USA
111	B38	Development of the carapacial ridge: implications for the evolution of genetic networks in turtle shell development. **J.E. Moustakas**. Department of Integrative Biology, University of California, Berkeley CA USA; Museum of Paleontology, University of California, Berkeley CA, USA

Morphogenesis

112	B39	Addressing the role of extrinsic cues in neuronal polarization. **S.K. Gupta, R. Mishra, D. Juncker, K.F. Meiri, S. Mani**. National Brain Research Centre, Manesar, Gurgaon, Haryana-122050, India; McGill University Montreal, Canada; Tufts University School of Medicine; Boston, MA, USA
113	B40	Growth dynamics of clusterized neuronal network in vitro. **L. Guo-An, T. Chen-Yu**. Department of Physics and Institute of Biophysics, National Central University, Jhong-Li, Taiwan 32001, Republic of China
114	B41	*Twist1* is required for Cardiac Neural Crest Morphogenesis. **J.W. Vincentz, R.M. Barnes, R. Rogers, B.A. Firulli, S.J. Conway, A.B. Firulli**. Wells Center for Pediatric Research, Indiana University School of Medicine, Indianapolis, IN, USA

115	B42	Axon Branching in Spiral Ganglion Neurons. **C. Lu, J. Appler, L. Goodrich**. Department of Neurobiology, Harvard Medical School, Boston, MA
116	B43	Polarization of Retinal Amacrine Cells by the Atypical Cadherin Fat3. **M.R. Deans, L.V. Goodrich**. Department of Neurobiology, Harvard Medical School, Boston, MA, USA
117	B44	Morphogenesis of the mouse node depends on the FERM domain protein Epb4.1l5. **J.D. Lee, K.V. Anderson**. Developmental Biology Department, Sloan-Kettering Institute, New York, NY, USA
118	B45	Bmp2 in the visceral endoderm directs anterior morphogenesis during gastrulation. **M.E. Madabhushi, G. Kwon, K. Hadjantonakis, L. Lacy**. Department of Dev. Biol., Sloan Kettering Institute, New York, NY USA; Weill Graduate School of Medical Sciences of Cornell University, USA
119	B46	Cell behaviors during endoderm morphogenesis in the mouse gastrula. **M. Viotti, G.S. Kwon, K. Hadjantonakis**. Dev. Bio. Program, Sloan-Kettering Institute, New York, NY, USA; BCMB Program, Weill Grad. School of Med. Sci. of Cornell University, New York, NY, USA; Neuroscience Program, Weill Grad. School of Med. Sci. of Cornell University, New York, NY, USA
120	B47	From the Tilted Mouse to the Otopetrin Gene Family: Molecular Insights into Development of the Vestibular Mechanosensory System. **D.M. Ornitz, E. Kim, I. Hughes, B. Hurle, Y. Lundberg, M. Warchol**. Department of Dev. Biol., and Otolaryngology, Washington University. St. Louis, MO; Boys Town Natl. Res. Hosp., Omaha, NE, USA
121	B48	The Ig superfamily protein Lrig3 controls inner ear morphogenesis by regulating Netrin-1 expression. **V.E. Abraira, A.F. Tucker, L.V. Goodrich**. Department of Neurobiology, Harvard Medical School, Boston MA, USA
122	B49	The Kinome of Lung Branching Morphogenesis — A Systems Approach to Identify Phosphoregulators of Mouse Lung Development. **C. Schnatwinkel, A. Minic, L. Niswander**. Department of Pediatrics, HHMI, UCDHSC, Aurora, CO, USA
123	B50	Cleftin: a Novel Fibronectin-induced Gene that Promotes Branching Morphogenesis. **T. Onodera, T. Sakai, K.M. Yamada**. NIDCR, NIH, Bethesda, MD, USA; Oral–Facial Disorders, Osaka University, Osaka, Japan
124	B51	A novel region in the murine allantois may prevent branching morphogenesis. **J.M. Daane, K.M. Downs**. Department of Anatomy, University of Wisconsin-Madison School of Medicine and Public Health, 1300 University Avenue, Madison, WI 53706, USA
125	B52	Notch signaling acts at multiple stages to regulate bile duct morphogenesis. **Y. Zong, A. Panikkar, B.Z. Stanger**. Abramson Family Cancer Research Institute, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania, USA; Cell and Molecular Biology Graduate Group, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania, USA
126	B53	Visualizing morphogen distribution in lumen. **T. Miura**. Department Anat Dev Biol, Kyoto University Grad Sch Med; JST CREST, PRESTO
127	B54	Shh signaling regulates reciprocal epithelial–mesenchymal interactions controlling palate development. **Y. Lan, R. Jiang**. Center for Oral Biology and Department of Biomedical Genetics, University of Rochester School of Medicine and Dentistry, Rochester, NY, USA
128	B55	Wnt2 signaling regulates morphogenesis of the inflow tract and atrioventricular canal during cardiac development. **Y. Tian, A.M. Goss, Z. Wang, T.P. Yamaguchi, E.E. Morrisey**. Department of Med, University of Pennsylvania, Philadelphia, PA, USA; NCI, Frederick, MD, USA
129	B56	Daam1 is required for mouse heart morphogenesis. **E. Cohen, E.E. Morrisey**. University of Pennsylvania, Philadelphia, PA 19104, USA
130	B57	LR asymmetric morphogenesis of heart looping. **S. Cheng, B. Graham, R. Sound, G. Schoenwolf, Y. Saijoh**. Department Neurobiolo and Anatomy, University of Utah, USA
131	B58	Inturned PCP effector gene is required for cilia biogenesis and mouse embryonic development. **A. Liu, H. Zeng, W. Wu, A. Wynkoop, L. Niswander, A. Liu**. Department of Biol., Pennsylvania State University, University Park, PA, USA; Department of Pediatrics, UCHSC, Aurora, CO, USA
132	B59	Patterning of the mouse embryonic germ layers: the Townes and Holtfreter cell sorting experiments revisited. **R. Moore, K.Q. Cai, X. Xu**. Department of Medical Oncology, Fox Chase Cancer Center, Philadelphia, PA; Department of Medicine, UM/Sylvester Comprehensive Cancer Center, Miami, FL, USA
133	B60	Sequential Roles of Wnt signaling/beta-catenin in mouse ventral dermal development. **R. Atit, J. Ohtola, J. Myers, B. Akhtar-Zaidi, D. Zuzindlak, P. Sandesara, S. Mackem**. Department of Biology, Case Western Reserve University, OH,USA; Laboratory of Pathology, National Cancer Institute, Bethesda, MD, USA; Department of Genetics and Department of Dermatology, Case Western Reserve University, OH, USA
134	B61	Role of Nectins in the development of epithelial appendages. **Y. Toshiyuki, J. Miyoshi, Y. Takai, I**. Thesleff. Inst of Biotechnology, University of Helsinki, Finland; Department of Molec Dell Biol, Kobe University Grad Sch of Medicine, Japan
135	B62	Fgfr2b signaling integrates tooth morphogenesis and dental axon patterning. **P. Kettunen, K. Luukko**. Department of Biomedicine, University of Bergen, Norway
136	B63	Development of successional teeth. **M. Buchtova, S. Balkova, E. Matalova, I. Misek**. Inst of Anim Physiol and Gen, Czech Rep; University of Vet and Pharm Sci Brno, Czech Republic
137	B64	Characterization of Tmem16f in vertebrate development. **D. Iribarne, J.R. Rock, B.D. Harfe**. Department of Molecular Genetics and Microbiology, Genetics Institute, University of Florida, Gainesville, FL, USA
138	B65	Emx2 in Limb Dorsalization. **K. Kanaya, J.M. Feenstra, C.U. Pira, K.C. Oberg**. Department Pathology and Human Anatomy, Loma Linda University, Loma Linda, CA, USA

139	B66	The role of FGF4 and FGF8 in posterior development of the mouse embryo. **A.M. Boulet, M.R. Capecchi**. Department of Human Genetics, HHMI/University of Utah, Salt Lake City, UT, USA
140	B67	Examining the roles of Lunatic fringe during secondary body formation. **S.E. Cole, E.T. Shifley, D. Walker**. Department of Mol. Genetics, The Ohio State University, Columbus, OH, USA
141	B68	A genetic screen for situs abnormalities. **N. Dominic, A. Ermakov, J. Stevens, S. Field, P. Goggolidou, N. Powles-Glover**. MRC Harwell, Oxfordshire OX11 0RD, UK
142	B69	A Potential Link between Fetal Exposure to Deet and Birth Defects in Chick Development. **J. Nagle, D.L. Rosch**. Biology Department, Kutztown University, Kutztown, PA USA
143	B70	Analysis of Fgf gene expression patterns in the ear-forming region of the chick. **S. Chapman, S.C. Chapman**. Biological Sciences, 132 Long Hall, Clemson University, Clemson, SC, 29634, USA
144	B71	Expression Patterns of Cadherin-6B in Chick Limb Development. **M.R. Determan, A.F. Paulson**. Department of Biol., University of South Dakota, Vermillion, SD, USA
145	B72	Influence of Biomechanical Force on Joint Development Marker Gene Expression in Chick Embryo Limb Bud Mesenchyme Micromass Cultures. **P.G. Alexander, B.E. Bobick, K.L. Clark, A.A. Chandra, R.S. Tuan**. Cartilage Biology and Orthopaedics Branch, NIAMS, NIH, DHHS, Bethesda, MD, USA
383	B73	Repression of genes by Snail2 during avian neural crest emigration. **L.A. Taneyhill**. Department of Animal Sciences, University of Maryland, College Park, MD, USA
147	B74	Ephrin B2 coordinates the formation of a morphological boundary and cell epithelialization during somite segmentation. **T. Watanabe, Y. Sato, Y. Takahashi**. Graduate School of Biological Sciences, NAIST, Nara, Japan
148	B75	Expression of agrin in the early embryo. **E. Kapolou, N. Zagris**. Department of Biol., University of Patras, Patras, Greece
149	B76	*Xenopus* ADAM19 is critical for Neural and Muscle Development. **R. Neuner, H. Cousin, C. McCusker, M. Coyne, D. Alfandari**. Department of Vet and Animal Science, University of Massachusetts, Amherst, MA, USA
150	B77	Maintaining the Balance: Regulation of Cadherin-11 by ADAM13 during Cranial Neural Crest Migration in *Xenopus laevis*. **C.D. McCusker, R.D. Neuner, H. Cousin, D. Alfandari**. University of Massachusetts, Amherst, MA, USA
151	B78	ADAM metalloproteases control of cell specification and cell migration during early embryogenesis. **D.R. Alfandari, H. Cousin, C. McCusker, R. Neuner**. Department of Vet and Animal Sciences, University of Massachusetts, Amherst, MA, USA
152	B79	Characterization of a new factor in the non-canonical Wnt signaling. **W. Liu, D. Khadka, A. Sato, R. Bharti, R. Habas**. Department Of Biochemistry, Rwjms-Umdnj, Piscataway, NJ, USA; The Cancer Institute Of New Jersey, New Brunswick, NJ, USA
153	B80	delta-catenin regulates *Xenopus* developmental morphogenesis. **D. Gu, A.K. Sater, H. Ji, M. Clark, S.A. Stratton, M.C. Barton, Q. Lu, P.D. McCrea**. Department of Biochemistry and Molecular Biology, UT MD Anderson Cancer Center, Houston, TX; Program in Genes and Development, UT GSBS, Houston, TX; Department of Biology and Biochemistry, University of Houston, Houston, TX; Department of Anatomy and Cell Biology, East Carolina University, USA
154	B81	Heterotaxin: a novel pyridine compound that perturbs left–right asymmetric organ morphogenesis. **M. Parr, D. Young, M. Dush, A. Dieters, N. Nascone-Yoder**. Molecular Biomedical Sci, College of Veterinary Medicine; Department Chemistry, North Carolina State University, Raleigh, NC, USA
155	B82	Basolumenal endoderm intercalation: a geometrically unique execution of convergent extension during gut tube elongation. **N. Nascone-Yoder, R. Reed, M. Womble, M. Dush, S. Bloom, R. Tull, A. Morckel**. Molecular Biomedical Sciences, College of Veterinary Medicine, North Carolina State University, Raleigh, USA
156	B83	Stiffening of the vertebrate embryo during axis elongation depends on actomyosin contractility. **L. Davidson, H. Kim, J. Zhou**. Department of Bioengineering, University of Pittsburgh, Pittsburgh, PA, USA
157	B84	Regulation of cytoarchitecture in development: the roles of IQGAP2, C-cadherin and Cdc42 in the early *Xenopus* embryos. **Q. Tao, S. Nandadasa, S. Lang, J. Heasman, C. Wylie**. Division of Developmental Biology, Children's Hospital Medical Center
158	B85	A tale of two tails: Multiple pathways regulate cell adhesion and morphogenesis in the zebrafish tail. **C. Thorpe, Y. Yang**. Division of Biology, Kansas State University, Manhattan, KS, USA
159	B86	Neuregulin-mediated ErbB3 signaling is required for DRG neuron formation. **Y. Honjo, J.S. Eisen**. Institute of Neuroscience, University of Oregon, Eugene 97403-1254, USA
160	B87	A role for zic genes during neural tube morphogenesis in zebrafish. **Y. Grinblat, M. Nyholm, A. Taylor, S. Burgess**. Zoology and Anatomy, University of Wisconsin, Madison, WI, USA; NIH, Bethesda, MD, USA
161	B88	Requirements for ovo orthologues in zebrafish neural tube and neural crest development. **S. Piloto, T. Schilling**. UC-Irvine, USA
162	B89	The zebrafish dob/fgf20a mutant models human craniosynostotic syndromes with midfacial hypoplasia. **W. Cooper, R. Albertson**. Department of Biology, Syracuse University, Syracuse, NY, USA
163	B90	Craniofacial phenotypes of the knypek (glypican4) mutant zebrafish. **E.E. LeClair, S. Mui, A. Huang, J.M. Topczewska, J. Topczewski**. Department of Biol. Sci., DePaul University, IL, USA; Department of Pediatrics, CMRC, Northwestern University, IL, USA
164	B91	vgl-2a is Required for Endodermal Pouch Morphogenesis in Zebrafish Craniofacial Development. **C. Johnson, W. Feng, T. Williams, K.B. Artinger**. University of Colorado Health Sciences Center Program of Molecular Biology; University of Colorado Health Sciences Center Department of Craniofacial Biology, USA

165	B92	Wnt signals facilitate behavioral transitions during zebrafish pancreas morphogenesis. **J. Rhee, B. Ghosh, M. Knabel, M. Parsons, S. Leach**. Surgery Department, Johns Hopkins University School of Medicine, Baltimore, MD, USA
166	B93	Zebrafish Wnt signaling co-operates with FAK in controlling slow muscle alignment along myotome boundaries. **S. Chong, L. Nguyet, Y. Jiang**. Department Developmental Signaling and Patterning, Institute of Molecular and Cell Biology, 61 Biopolis Drive, 138673 Singapore
167	B94	Regulation of cardiac morphogenesis in zebrafish by hand2. **Z.V. Garavito-Aguilar, D. Yelon**. Developmental Genetics Program, Skirball Institute, NYU School of Medicine, New York, NY, USA
168	B95	Elucidating mechanisms of left–right patterning in vertebrate embryos. **C.E. Slagle, R.R. Burdine**. Department of Mol. Bio., Princeton University, Princeton, NJ, USA
169	B96	Serum Amyloid A is required for hedgehog signaling in zebrafish morphogenesis. **P.S. Page-McCaw, V. Valakh, K. Mann, Z. Ye, W. Colon**. Department of Biology, CBIS, RPI, Troy, NY 12180; Department of Chemistry, CBIS, RPI, Troy, NY 12180, USA
170	B97	gadd45b is expressed at the determination front and is regulated by Fgf and RA signaling during zebrafish somitogenesis. **K.S. Brown, S.L. Amacher**. Department of Molecular and Cellular Biol., University of California, Berkeley, USA
171	B98	Coupling vs. Noise: The Rise and Fall of Synchrony in the Segmentation Clock. **I.H. Riedel-Kruse, M. Claudia, O.C. Andrew**. Division of Biology, California Institute of Technology, Pasadena, CA, USA; Max Planck Institute of Molecular Cell Biology and Genetics, Dresden, Germany
172	B99	Examining the role of the *C. elegans* uterine Anchor Cell in vulva morphogenesis. **K. Estes, W. Hanna-Rose**. Department of Biochem, Mol. Bio, Pennsylvania State University, University Park, PA, USA
173	B100	Notch Signaling and Morphogenesis of Single-Cell Tubes in the *C. elegans* Digestive Tract. **J. Rasmussen, K. English, J. Tenlen, J.R. Priess**. Fred Hutchinson Cancer Research Center, Seattle, WA 98109, USA.; Howard Hughes Medical Institute; Molecular and Cellular Biology Program, University of Washington, Seattle, WA 98195, USA
174	B101	Mutagenesis screen in *C. elegans* suggests role of mor genes in pharyngeal development. **A.R. Ferrier, P.A. Smith**. Department of Biol., Lake Forest College, Lake Forest, IL, USA
175	B102	Overcoming genetic redundancy to identify proteins acting in *C. elegans* gastrulation. **J. Sawyer, T. Li, B. Goldstein**. Department of Biology, University of North Carolina at Chapel Hill, USA
176	B103	Live imaging reveals that myoblast fusion requires dynamic remodeling of the actin cytoskeleton. **M. Baylies, S. Nowak, B. Richardson**. Program in Developmental Biology, Sloan Kettering Institute, NY, NY; Weill Graduate School at Cornell Medical School, NY, NY, USA
177	B104	Rho-Kinase and Myosin Heavy Chain are Required for Epithelial Morphogenesis in the *Drosophila* Embryo. **R. Simone, S. DiNardo**. Department of Cell and Dev. Biol., University of Pennsylvania, Philadelphia, PA, USA
178	B105	The *Drosophila* gene dead man walking (dmw) has pleiotropic effects on embryonic morphogenesis and the larval/pupal transition, and interacts genetically with alphaPS3 integrin and Sternopleural (Sp). **M.B. Dinkins, J.T. Warren, L.I. Gilbert, E.K. LeMosy**. Department of Cellular Biol. and Anatomy, Medical College of GA, Augusta, GA; Department of Biol., University of NC-Chapel Hill, USA
179	B106	Proteomic Analysis of *Drosophila* Fragile X Mutant Cleavage Stage Embryos. **K. Monzo, S.R. Dowd, J.S. Minden, J.C. Sisson**. MCDB, The University of Texas at Austin, Austin, TX; The Department of Biological Sciences, Carnegie Mellon University, Pittsburgh, PA, USA
180	B107	Serotonin synthesis is necessary for gastrulation in the sea urchin, Lytechinus pictus. **T.A. Scully, K.N. Carroll, K.M. Brown**. Department Biological Sciences, George Washington University, Washington DC 20052, USA
181	B108	Role of serotonin in sea urchin embryo morphogenesis. **K.N. Carroll, T.A. Scully, E.S. Mateer, Y. Cheng, M. Dzirlo-Ayvaz, K.G. Anitole-Misleh, K.M. Brown**. Department Biological Sciences, George Washington University, Washington, DC 20052, USA
182	B109	Hydra matrix metalloproteinases are involved in tissue dynamics, patterning process, and morphogenesis. **X. Zhang, R. Aufschnaiter, L. Zhang, M.P. Sarras, Jr**. Department of Anatomy and Cell Biology, University of Kansas Medical Center, Kansas City, KS, USA.; Zoological Institute and Center of Molecular Biosciences, University of Innsbruck, Innsbruck, Austria.; Department of Cell Biology and Anatomy, Rosalind Franklin University of Medicine and Science, North Chicago, IL, USA

Cell–Cell Signaling

183	B110	The effect of Notch signaling on neurotransmitter phenotype specification in *Xenopus*. **M.S. Harper, S. Byers, M.S. Saha**. Department of Biol., College of William and Mary, Williamsburg, VA, USA
184	B111	Decoding the in vivo Notch targetome. **C. Morgenstern, D. Ish-Horowicz**. Developmental Genetics Laboratory, Cancer Research UK London Research Institute, London, UK
185	B112	Fgf signaling during cerebellar morphogenesis. **Y. Yaguchi, T. Yu, M. Gait, I. Mason, M. Basson**. Department of Craniofacial Development, King's College London, UK; MRC Centre for Developmental Neurobiology, King's College London, UK
186	B113	FGF Signaling during embryo development regulates ciliogenesis in diverse epithelia. **J.M. Neugebauer, J.D. Amack, H. Yost**. Department Neuro and Anatomy, University of Utah, Salt Lake City, UT; Department of Cell and Dev. Biol., SUNY Upstate Medical University, Syracuse, NY, USA
	B114	Withdrawn
188	B115	Endothelial signals regulate hepatocyte apico-basal polarization in zebrafish. **T.F. Sakaguchi, K.C. Sadler, C. Crosnier, D.Y. Stainier**. University of California, San Francisco, CA; Mount Sinai School of Medicine, NY; Cancer Research, London, UK

189 B116 Cell–cell interactions mediate trigeminal ganglion formation and require Robo2-Slit1 signaling. **C.E. Shiau, P.Y. Lwigale, M. Bronner-Fraser**. Division of Biology MC 139-74, California Institute of Technology, Pasadena, CA 91125, USA

190 B117 Sprinter/Wntless is an escort factor for Wg deployment. **E.M. Selva, A. Harmon, Y. Sharma**. Department of Biological Sciences, University of Delaware, Newark, DE 19716

191 B118 Examining the role of the *C. elegans* uterine-vulval 1 (uv1) cells in egg-laying function. **L. Liu, L. Huang, W. Hanna-Rose**. Department Biochemistry and Molecular Biology, The Pennsylvnia State University, University Park, PA, USA

Intracellular Signaling Pathways

192 B119 Inca: a novel regulator of cytoarchitecture and gene expression in vertebrate development. **T.D. Sargent, T. Luo, Y. Xu**. Laboratory of Molecular Genetics, NICHD, NIH, Bethesda MD, USA

193 B120 Fast1 Functions as a Transcriptional Switch for Nodal Signaling in *Xenopus* Mesodermal Development. **A. Steiner***, **C. Reid***, **S. Yaklichkin, Q. Lu, S. Wang, M. Hennessy, D.S. Kessler**. Department of Cell and Developmental Biology, University of Pennsylvania, Philadelphia, PA, USA

194 B121 Wnt8 signals through HIPK2 to relieve TCF3-mediated transcriptional repression. **H. Hikasa, K. Itoh, S.Y. Sokol**. Department of Dev. and Regenerative Biol. MSSM, New York, NY, USA

195 B122 Role of xSyndecan4 in non-canonical Wnt signaling. **L. Carvallo, R. Muñoz, N. Escobedo, J. Larraín**. FONDAP Biomedicine. Facultad de Ciencias Biológicas, P. Universidad Católica de Chile, Chile

196 B123 A bimodal modulator in canonical Wnt signal transduction. **K. Tamai, H. Iioka, S. Doerner**. Department of Genetics, Case Western Reserve University, Cleveland, OH, USA

197 B124 A role of Diversin subcellular localization in modulating Wnt signaling. **K. Itoh, S.Y. Sokol**. Department of Developmental and Regenerative Biology, Mount Sinai School of Medicine, New York, NY 10029, USA

198 B125 Cardiomyocyte-specific loss of neurofibromin promotes cardiac hypertrophy and dysfunction through activation of the fetal gene program. **J. Xu, F.A. Ismat, T. Wang, M. Lu, J.A. Epstein**. Department of Cell and Dev. Biol., University of Pennsylvania SOM, Philadelphia, PA; Div. of Cardiology, Children's Hosp. of Philadelphia, Philadelphia, PA, USA

199 B126 Nf1 is required for early murine lens development. **C. Carbe**. Department of Medical and Molecular Genetics, Indiana University School of Medicine, Indianapolis, IN, USA

200 B127 MAPK signaling during vasculature development in the mouse retina. **J.L. Bromberg-White, E. Boguslawski, N.S. Duesbery**. Laboratory of Cancer and Developmental Cell Biology, Van Andel Research Institute, Grand Rapids, MI, USA

201 B128 A Role for TULP3 in Mouse Hedgehog Signaling and Neural Patterning. **R.A. Norman, A. Ikeda, J.T. Eggenschwiler**. Department of Molecular Biology, Princeton University, Princeton, NJ, USA; Laboratory of Genetics, University of Wisconsin-Madison, WI, USA

202 B129 Intraflagellar transport protein 122 is a novel antagonist of the murine Hedgehog signaling pathway. **J. Qin, Y. Lin, H. Ko**. Department of Molecular Biology, Princeton University. Princeton, NJ 08544, USA

203 B130 Expression of EGF-Responsive ERK5 in Embryonic Mouse Submandibular Glands. **M. Kashimata, N. Koyama, T. Hayashi, E.W. Gresik**. Department of Pharmacology, Asahi University, Sch. of Dent., Gifu, Japan; Department of Cell Biology and Anatomy, CUNY, Medical Sch., NY, NY, USA

204 B131 Absolute quantitation of mRNAs for ErbB receptors and their ligands in fetal mouse submandibular glands by a real time RT-PCR. **T. Hayashi, N. Koyama, M. Kashimata, E.W. Gresik**. Department of Pharmacology, Asahi University Sch. of Dent., Gifu, Japan; Department of Cell Biology and Anatomy, CUNY, Medical Sch., NY, NY, USA

205 B132 Dynamic control of Sanpodo protein targeting regulates Notch signaling following asymmetric cell division in *Drosophila*. **D. Zitserman, X. Tong, F. Roegiers**. Epigenetics and Progenitor Cells Program, Fox Chase Cancer Center, Philadelphia, PA, USA

206 B133 Numb binding to a conserved motif of Sanpodo regulates its endocytosis in Notch-mediated cell fate decisions in *Drosophila*. **X. Tong, D. Zitserman, F. Roegiers**. Epigenetics and Progenitor Cell Program, Fox Chase Cancer Center, Philadelphia, PA, USA

207 B134 *Drosophila* Rabconnectin3 alpha and beta regulate trafficking and Notch signaling in the follicle cells. **Y. Yan, N. Denef, T. Schupbach**. Department Molecular Biology, Princeton University; HHMI

208 B135 Identification and characterization of phosphatases that regulate TGFß signaling in *C. elegans*. **S. Xiong, C. Savage-Dunn**. Biology Department, Queens College and Biochemistry Program, the Graduate Center, CUNY, Flushing, NY, 11367, USA

209 B136 The role of bec-1 in *C. elegans* autophagic and endocytic pathways. **A.S. Ruck, L. Nuñez, A. Meléndez**. Department of Biology, Queens College, Flushing, NY, USA

Cell Fate Specification

210 B137 Linking cell polarity to competence during heart specification. **B. Davidson, D. Odam**. MCDB, University of Arizona, Tucson, AZ, USA

211 B138 Vitamin overdose: vitamin B3 processing by PNC-1 regulates *C. elegans* organ development. **T.L. Vrablik, W. Hanna-Rose**. Biochem. and Mol. Biol., Pennsylvania State University, University Park, PA, USA

212 B139 An extrinsic cue regulates neuronal temporal identity in the *Drosophila* mushroom body. **E.C. Marin, B.A. Apenteng, J.W. Truman**. Department of Biology, University of Washington, Seattle, WA, USA; Neuroscience Program, University of Washington, Seattle, WA, USA; Janelia Farm Research Campus, Ashburn, VA, USA

213 B140 *Drosophila* Apontic acts as a feedback inhibitor of JAK/STAT signaling and is required to limit an invasive cell population. **M. Starz-Gaiano, M. Melani, X. Wang, H. Meinhardt, D. Montell**. Johns Hopkins School of Medicine, Baltimore, MD, USA; Max-Planck-Institut für Entwicklungsbiologie, Tübingen, Germany

214 B141 Sequential actions of Pax3 and Pax7 drive xanthophore development in zebrafish neural crest. **J.E. Minchin, S.M. Hughes**. Randall Division of Cell and Molecular Biophysics, King's College London, UK; MRC Centre for Developmental Neurobiology, King's College London, UK

215 B142 The Zebrafish Mutants lpy and myx Exhibit Loss of Skeletogenic Cranial Neural Crest. **S.G. Cox, G.D. Crump**. Center for Stem Cell and Regenerative Medicine, University of Southern California, Los Angeles, CA, USA

216 B143 Notch resolves mixed neural identities in the zebrafish epiphysis. **A. Quillien, E. Cau, P. Blader**. Centre de Biologie du Développement, Université Paul Sabatier, Toulouse, France

217 B144 Notch signaling has differing effects on subpopulations of retinal progenitor cells in zebrafish retinal development. **A. Millet, J.M. Fadool**. Department of Biol. Sci., FSU, Tallahassee, FL, USA

218 B145 Lots-of-rods (lor) Regulates Photoreceptor Subtype Specification in Zebrafish. **J.M. Fadool, J.T. Gamse, K. Alvarez-Delfin, A.C. Morris**. Biological Science, Florida State University, Tallahassee, FL, USA; Biological Sciences, Vanderbilt University, Nashville, TN, USA

219 B146 Intra-endodermal interactions are required for pancreatic ß-cell induction. **W. Chung, D.Y. Stainier**. Department of Biochemistry and Biophysics, University of California, San Francisco, San Francisco, CA 94158, USA

220 B147 PAR-1 phosphorylates the ubiquitin ligase Mind bomb to repress Notch signaling and promote vertebrate neurogenesis. **S. Sokol, O. Ossipova, J. Ezan**. Department of Developmental and Regenerative Biology, Mount Sinai School of Medicine, Box 1020, New York, NY 10029, USA

221 B148 Characterization of calcium channel subunit expression in the developing *Xenopus laevis* nervous system. **L. Miller, B. Johnson, M. S. Saha**. Department of Dev. Biol., College of William and Mary, Williamsburg, VA, USA

222 B149 A novel in vitro system of primary *Xenopus* ectodermal explants to determine the specific function of pan neural SoxB1 proteins. **T. C. Archer, E.M. Silva Casey**. Department of Biology, Georgetown University, Washington, DC, USA

223 B150 Characterization of neurotransmitter phenotypes in the developing *Xenopus* retina. **R.F. Lowdon, M.S. Saha**. Department of Biol., College of William and Mary, Williamsburg, VA, 23185, USA

224 B151 Otic placode specification in *Xenopus* by hindbrain-derived signals. **B. Park, J. Saint-Jeannet**. Department of Anim. Biol., Vet. Med., University of Pennsylvania, Philadelphia, PA, USA

225 B152 Fgf8a and Wnt8 are acting in the same pathway to specify the neural crest in *Xenopus*. **C. Hong, B. Park, J. Saint-Jeannet.** Department of Biol. Sci., Daegu University, Gyeongsan, Gyeonbuk, Korea; Department of Anim. Biol., Sch. of Vet. Med., University of Pennsylvania, Philadelphia, PA, USA

226 B153 Developmental potential of migrating neural crest cells. **V.M. Lee**. Department of Pediatrics, Med. Coll. of Wis., Milwaukee, WI, USA

227 B154 Genome wide transcription profile of migrating neural crest cells. **X. Gao, H. Meng, V.M. Lee**. Department of Pediatrics, Med Coll Wis., Milwaukee, WI 53226, USA

228 B155 Intrinsic features of the caudal-most neural crest cells in chick embryo. **L. Osorio, M. Teillet, M. Catala**. LBD, UPMC University of Paris 06, Paris, France; LBD, CNRS UMR7622, Paris, France; ICVS ECS, University of Minho, Braga, Portugal

229 B156 FGF, Notch, and Wnt signaling regulate ophthalmic trigeminal placode cell fate determination and differentiation. **R.N. Lassiter, S.B. Reynolds, M.R. Stark**. Department of Physiology and Developmental Biology, Brigham Young University, Provo, UT, USA

230 B157 PDGF signaling is critical for trigeminal placode formation. **K.L. McCabe, M. Bronner-Fraser**. Div. of Biol. California Institute of Technology, Pasadena, CA, USA

231 B158 Sphingosine-1-phosphate signaling during sensory gangliogenesis. **H. Meng, X. Gao, V.M. Lee**. Department of Pediatrics, Med. Coll. of Wis., Milwaukee, WI, USA

232 B159 Molecular networks controlling the specification of sensory organ progenitors. **A. Streit, N. Christophorou, L. Lleras**. Department Craniofacial Development, King's College Lodon, London, UK

233 B160 Sox2 as a prosensory and proneural gene in the developing mouse cochlea. **C. Puligilla, A. Dabdoub, K.S. Cheah, L.H. Pevny, M.W. Kelley**. NIDCD/NIH, MD; University of Hong Kong; UNC, NC, USA

234 B161 Hedgehog signaling regulates mammalian sensory cell formation and auditory function. **E. Carroll Driver, M.W. Kelley**. Sect. on Dev. Neuroscience, NIDCD, NIH, Bethesda, Maryland, USA

235 B162 miR-34a modulates neural progenitor cell differentiation. **S.K. Fineberg, L.L. Ghosh, B.J. He, S.Q. Harper, B.L. Davidson**. Molecular Physiology and Biophysics; Medical Scientist Training Program; Iowa Biosciences Advantage; Children's Hospital, Ohio State University; Department of Internal Medicine, USA

236 B163 Lin28 controls cell fate in mammalian neurogenesis. **E. Balzer, E.G. Moss**. Department of Mol. Biol. UMDNJ, Stratford, NJ, USA

237 B164 An essential Role for Frizzled5 in neuronal survival in the parafascicular nucleus of the thalamus. **C. Liu, Y. Wang, P.M. Smallwood, J. Nathans**. Department of Molecular Biology and Genetics,Johns Hopkins University School of Medicine, Baltimore, Maryland, USA; Hughes Medical Institute, Johns Hopkins University School of Medicine, Baltimore, Maryland, USA

238 B165 *Pitx2* is critical for the survival and specification of extraocular muscles. **E.L. Amanda, M. Qian, P.J. Gage**. Cell and Developmental Biology; Ophthalmology and Visual Science, University of Michigan, Ann Arbor, MI, USA

239 B166 Evidence for functional conservation of myogenic regulatory factors: Electric fish MyoD and myogenin induce mammalian skeletal muscle differentiation. **R. Güth, H. Kim, G. Unguez**. Department of Biology, New Mexico State University, Las Cruces, NM, USA

240 B167 Lineage mapping and genetic cell ablation of post-migratory cardiac neural crest cells. **S.J. Conway, P. Snider**. Herman B Wells Center for Pediatric Research, Indiana University School of Medicine, IN 46202, USA

241 B168 Notch2 controlled molecular mechanisms underlying secondary heart field differentiation and proliferation. **P.A. Varadkar, M. Kraman, B. McCright**. Division of Cellular and Gene Therapies, FDA, Bethesda MD, USA

242 B169 Constitutive activation of ß-catenin signaling in embryonic surface epithelium results in global acquisition of hair follicle fate. **Y. Zhang, T. Andl, F. Liu, S.H. Yang, M.M. Taketo, A.A. Dlugosz, S.E. Millar**. Departments of Dermatology and Cell and Developmental Biology, University of Pennsylvania, Philadelphia, PA 19104, USA

243 B170 Distinct sequential cell behaviours direct primitive endoderm formation in the mouse blastocyst. **A.E. Piliszek, B. Plusa, S. Frankenberg, J. Artus, A. Hadjantonakis**. Developmental Biology Program, Sloan-Kettering Institute, New York, NY, USA; Faculty of Life Sciences, Manchester University, Manchester, UK; Department of Experimental Embryology, Institute of Genetics and Animal Breeding, Polish Academy of Sciences, Jas., Poland

244 B171 NOTCH1 is a stronger astrocytic stimulus than leukemia inhibitory factor for rat neural stem cells. **N.S. Rodríguez, D. Escalante-Alcalde, I. Velasco**. Department de Neurociencias, Instituto de Fisiología Celular, UNAM, México DF

Cell Motility and Guidance

245 B172 The *C. elegans* Flamingo homologue FMI-1 is involved in pioneer-mediated axon guidance in the ventral nerve cord. **A. Steimel, I. Wacker, H. Hutter**. Department of Biological Sciences, Simon Fraser University, Burnaby BC, Canada; MPI for Medical Research, Heidelberg, Germany

246 B173 The role of PDGF-AA-fibronectin interactions in the directed migration of mesendoderm cells during gastrulation. **E.M. Smith, M. Mitsi, M.A. Nugent, K. Symes**. Department of Biochemistry, Boston University School of Medicine, Boston, MA, USA

247 B174 Regulation of Twist Function in Developmental and Pathological Epithelial–Mesenchymal Transitions. **R.M. Lander, C. LaBonne**. IBiS, Department of Biochemistry, Molecular Biology and Cell Biology, Northwestern University, Evanston, IL, USA

248 B175 Myosin-X is required for proper behavior of Neural Crest Cells in *Xenopus laevis*. **Y. Hwang, T. Luo, Y. Xu, T.D. Sargent**. Laboratory of Molecular Genetics, NICHD, NIH, Bethesda, MD, USA

249 B176 *Xenopus* sonic hedgehog is involved in retinal axon guidance. **A.R. Morris, L. Carlson, M. Mansh, H. Kinsman**. Department of Biology, Haverford College, Haverford, PA, USA; Neuroscience Program, University of Pennsylvania, Philadelphia, PA, USA

250 B177 The GSK-3ß and a-catenin binding sites of ß-catenin exert opposing effects on directional persistence and filopodial protrusions of optic axons in situ. **A. Shah, A. Pelzer, M. Southard, T. Elul**. College of Osteopathic Medicine, Touro University-California; Department of Basic Sciences, USA

251 B178 Interactions between [beta]-Catenin and Fgf signaling coordinate directional migration of groups of cells. **A. Aman, T. Piotrowski**. University of Utah, Department of Neurobiology and Anatomy, Salt Lake City, UT 84132, USA

252 B179 Characterization of genes selectively expressed in the developing zebrafish nervous system. **D.R. Hammond, A. Schmoldt, A.J. Udvadia**. Department of Biological Sciences, UW- Milwaukee, Milwaukee, WI, USA; Great Lates WATER Institute, UW-Milwaukee, Milwaukee, WI, USA

253 B180 Discovery of selectively expressed genes in the developing vertebrate nervous system. **F. Jennifer, H.R. Dena, F. Jennifer, U.J. Ava**. Department of Bio. Sci., UW-Milwaukee, Milwaukee, WI, USA; Great Lakes WATER Institute, UW-Milwaukee, Milwaukee, WI, USA

254 B181 cMet signaling functions during zebrafish hindbrain development. **G.E. Elsen, L.Y. Choi, V.E. Prince, R.K. Ho**. Committee on Neurobiology, University of Chicago, Chicago, IL; Committee on Developmental Biology, University of Chicago, Chicago, IL; Department of Organismal Biology and Anatomy, University of Chicago, Chicago, IL, USA

255 B182 Semaphorin3A regulates neural crest migration during ocular development. **P.Y. Lwigale, M. Bronner-Fraser**. Division of Biology, California Institute of Technology, Pasadena, CA. USA; Department of Biochem. and Cell Biol., Rice University, Houston, TX, USA

256 B183 Neuropilin Receptors Regulate Vertebrate Peripheral Nervous System Segmentation. **J. Roffers-Agarwal, L.S. Gammill**. Department of Genetics, Cell Biology and Development, University of Minnesota. Minneapolis, MN 55455, USA

257 B184 Role of frizzled 3, a Planar Cell Polarity gene, in sympathetic nervous system development. **A.G. Richmond, D. Chieco, R. Kuruvilla**. Johns Hopkins University Baltimore, MD, USA

258 B185 Parietal Endoderm Migration is Directed by the Planar Cell Polarity Pathway. **K. LaMonica, M. Bass, L. Grabel**. Department of Biology, Wesleyan University, Middletown, CT, USA

259 B186 Dynamics of collective cell migration under cell density heterogeneity. **Y. Chen, G. Liu, L. I.** Department of Physics and Institute of Biophysics, National Central University, Jhong-Li, Taiwan 32001, Republic of China

260 B187 Movers and Shakers: Timelapse Analysis of Satellite Cell Migration. **A. Siegel, K. Atchison, G.E. Davis, D. Cornelison**. Div. of Biological Sciences, University of Missouri, Columbia, MO, USA; Department of Medical Pharmacology and Physiology

Cell Proliferation

B188 Withdrawn

262 B189 Maternal-effect brambleberry functions during cleavage stage to maintain nuclear integrity. **E.W. Abrams, F. Marlow, L. Kapp, T. Gupta, M. Mullins**. University of Pennsylvania, Depart. of Cell and Developmental Biology, Philadelphia, PA, USA

263 B190 Developmental Regulation of Cell Division Mechanisms in a Vertebrate Embryo. **E. Kieserman, M. Glotzer, J.B. Wallingford**. Department of Mol. Cell and Dev Biol,, ICMB. University of Texas at Austin, Austin, TX, USA; Department of Mol. Genetics and Cell Biol. University of Chicago. Chicago, IL, USA

264 B191 Differentiation Of Trophoblast Stem Cells Into Giant Cells Is Triggered By p57 Inhibition Of CDK1 Activity. **M.J. Kohn, Z. Ullah, R. Yagi, L. Vassilev, M. DePamphilis**. Program in Genomics of Development, NICHD, NIH, Bethesda, MD; Department of Discovery Oncology, Roche Research Center, Nutley, NJ, USA

265 B192 Function of a key Cell Cycle regulator, the CDC25B phosphatase, during Neurogenesis. **E. Peco, V. Sabado, F. Medevielle, C. Dozier, B. Ducommun, F. Pituello**. Centre de Biologie du Développement, Toulouse, FRANCE; LBCMCP, Toulouse, FRANCE; Department of Craniofacial Dev., King's college, London, UK

266 B193 Alterations in HGF/SF-Met signaling in the developing forebrain modulate neuronal proliferation and migration. **G.J. Martins, C. Plachez, E.M. Powell**. Prog. Neurosci; Department Anat Neurobiol; Department Psychiatry, University of Maryland, Baltimore, USA

267 B194 Nonmuscle Myosin II-B Plays Important Roles in Mouse Heart Development. **X. Ma, R.S. Adelstein**. LMC/NHLBI, Bethesda, MD, 20892-1762, USA

268 B195 Understanding the impact of ?-Secretase on cell death in *Drosophila*. **H. Chung, E. Atkinson, B. Mercer, C. Kay, E. Cooper**. Department of Biology, University of West Florida; Environmental Protection Agency in Gulf Breeze, USA

Germ Cells and Gametogenesis

269 B196 LSD1 Contributes to Germline Immortality in *C. elegans* by Reprogramming Epigenetic Memory. **D.J. Katz, T. Edwards, W.G. Kelly**. Department of Biology, Emory University, Atlanta, GA, USA

270 B197 The intriquing interaction of Dicer (DCR-1) with GLH-1, a P granule component in Caenorhabitis elegans. **E.L. Racen, T.J. McEwen, K.L. Bennett**. University of Missouri, Columbia, MO, USA

271 B198 A dominant suppressor of the fog-1(q253ts) allele maps to *C. elegans* LGII. **K.R. Douglas, A.C. Caravelli, J.J. Lyphout**. Biology Department, Augustana College, Rock Island, IL, USA

272 B199 Regulation of the actin cytoskeleton during *Drosophila* oogenesis by Ena and Capping Protein. **J. Gates, J.P. Mahaffey, S. Beckwith, N. Kaplan, M. Peifer**. Biol. Department, Bucknell University, Lewisburg, PA; Biol. Department, UNC-CH, Chapel Hill, NC, USA

273 B200 Myosin Phosphatase Plays a Role in Incomplete Cytokinesis. **C. Tan, S. Ong**. Bond Life Sciences Center, Div. of Biol. Sciences, University of Missouri, MO, USA

274 B201 Zfh-1 controls somatic stem cell self-renewal in the *Drosophila* testis, and non-autonomously influences germline stem cell self-renewal. **J.L. Leatherman, S. DiNardo**. Department of Cell and Developmental Biology, University of Pennsylvania School of Medicine, USA

275 B202 A cell-intrinsic role for IGF signaling in zebrafish primordial germ cell migration. **A.W. Wood, X. Sang, M.S. Curran**. Vincent Center for Reproductive Biology, Massachusetts General Hospital, Boston, MA; Harvard Stem Cell Institute, Boston, MA, USA

276 B203 magellan functions during oogenesis to establish the animal–vegetal axis of the zebrafish egg. **T. Gupta, F. Marlow, W. Mei, M. Mullins**. University of Pennsylvania, Philadelphia, PA 19104, USA

277 B204 Ovarian Development in Mice Requires GATA4/FOG2 Transcriptional Complex. **S.G. Tevosian, F.O. Smagulova, D. Maatouk, L.L. Leach, B. Capel, N.L. Manuylov**. Department of Genetics, Dartmouth Medical School, Hanover, NH 03755; Department of Cell Biology, Duke University Medical Center, Durham, NC 27710, USA

278 B205 CDC14A and CDC14B regulate meiotic progression in mouse oocytes. **K. Schindler, R.M. Schultz**. University of Pennsylvania, Department of Biology, Philadelphia, PA 19104

279 B206 Hsp90a regulate meiotic G2/M transition in mouse oocyte. **A.A. Metchat, M.M. Åkerfelt, C.C. Bierkamp, V.V. Delsinne, L.L. Sistonen, H. H. Alexandre, E.E. Christians**. Centre de Biologie du Développement, UMR5547 CNRS-UPS, Toulouse, France; University of Turku, Åbo Akademi University, 20520 Turku, Finland; Université de Mons-Hainaut, Faculté de Médecine-Pharmacie, Mons, Belgium

Fertilization

280 B207 Live Imaging Analysis of Mouse Sperm Acrosomal Exocytosis. **M.G. Buffone, E. Rodriguez-Miranda, G.L. Gerton**. Ctr. Res. Reprod. Women's Hlth, University of Pennsylvania Med Ctr., Philadelphia, PA; Department OBGYN, University of Pennsylvania Med Ctr., Philadelphia, PA, USA

281 B208 TSSK6, a member of the testis-specific serine kinase family, is required for sperm–egg fusion in the mouse. **J. Sosnik, P. Miranda, N. Spiridonov, S. Yoon, R.A. Fissore, G. Johnson, P.E. Visconti**. University of Massachusetts, Amherst, MA; FDA, Bethesda, MD, USA

282 B209 Sorbitol Can Fuel Mouse Sperm Motility And Protein Tyrosine Phosphorylation Via Sorbitol Dehydrogenase. **W. Cao, H.K. Aghajanian, L.A. Haig-Ladewig, G.L. Gerton**. Center for Research on Reproduction and Women's Health, University of Pennsylvania Medical Center, Philadelphia, PA, USA; Department of Pathology and Laboratory Medicine, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania, USA

Stem Cells and Tissue Regeneration

283 B210 Neural Stem Cell Erythropoietin Receptor Expression During Human Fetal Brain Development. **H. Hao, J. Zhao, K. Barami, L. Morawa**. Department Orthopaedic Sug. Wayne State University, Detroit, MI 48823; Neuroscience Ctr., Memorial Hosp. Jacksonville, FL, USA

284	B211	Frozen human fibroblast cultures of varying ages contain numerous multipotent cells capable of in vitro differentiation into cells of all three germ layers. **L.J. Sciorra, A. Arriola, B. Aryal, B. Bista, J.M. Cipolla, K. Gryte, S. Iparraguirre, J. Wilmanski**. St. Peter's College, Jersey City, NJ, USA
	B212	Withdrawn
286	B213	Interactors of Sox2 in embryonic stem cells. **P. Gontan, T. Güttler, J. Demmers, F. Grosveld, D. Tibboel, M. Fornerod, D. Görlich, R. Poot, R. Rottier**. Department Cell Biology, Erasmus MC, Rotterdam, The Netherlands; Department of Pediatric Surgery, Erasmus MC, Rotterdam, The Netherlands; Max-Planck-Institut für Biophysikalische Chemie, Göttingen, Germany; Department of Tumor Biology, NKI, Amsterdam, The Netherlands
287	B214	The exon junction complex component, Magoh, is required for neural stem cell maintenance. **D.L. Silver, D. Watkins-Chow, W.J. Pavan**. GDRB, NHGRI, Bethesda, MD
288	B215	Foxd3 is required for maintenance of multipotent neural crest progenitors. **N.A. Mundell, A.Y. Frist, P.A. Labosky**. Department of Pharmacology; Department of Cell and Developmental Biology, Vanderbilt University, Nashville, TN, USA
289	B216	Nuclear interaction of homeodomain protein ZHX2 and ephrin-B1 in neural progenitor maintenance. **C. Wu, J. Wang, R. Qiu, K. Murai, H. Zhang, Q. Lu**. Division of Neurosciences, Beckman Research Institute of the City of Hope, 1500 East Duarte Road, Duarte, CA 91010; City of Hope Graduate School of Biological Sciences, USA
290	B217	Differential gene expression profile in comparative microarray between olfactory ensheathing cells and striatal embryonic stem cell. **D. Ortuno, N.M. Torres-Ruíz, A.E. Rojas-Mayorquín, C. Beas, G. Gudiño-Cabrera**. Department of Cell. Mol. Biol. Universidad de Guadalajara, Jalisco, Mexico
291	B218	Pleiotrophic roles for syndecan-4 in muscle regeneration. **K.L. Capkovic, D. Cornelison**. Department of Biol. Sci., University of Missouri, Columbia, MO, USA
292	B219	Role of Ldb1 in tissue homeostasis of the adult mouse. **I. Dey-Guha, M. Mukhopadhyay, H. Westphal**. LMGD, NICHD, NIH, Bethesda, MD, USA
293	B220	Islet1 and its cofactor LDB1 express in the mouse intestinal epithelium. **E. Makarev, H. Westphal**. Laboratory of Mammalian Genes and Development, NIH, Bethesda, MD, USA
294	B221	WNT/ß-catenin signaling maintains regenerating adult oral appendage organs and promotes stem cell expansion and de novo organ development. **F. Liu, T. Andl, Y. Zhang, S. Millar**. Departments. of Dermatology and Cell and Developmental Biology, University of Pennsylvania, Philadelphia, PA, USA
295	B222	Wnt/ß signaling regulates expansion but not survival of mammary stem cells. **X. Wu, M.M. Yunta, E.E. Chu, T. Andl, N.M. Gallant, S. Piccolo, A. Glick, S.E. Millar**. Department of Derm., University of Pennsylvania, Philadelphia, PA, USA; Department of Histo., Microbio., and Medical Biotech, University of Padua, Padua, Italy; Department of Veterinary and Biomedical Sciences, Pennsylvania State University, University Park, PA, USA
296	B223	Dicer is required for maintenance of hair follicle stem cells in adult skin. **M. Teta, A. Thomas, T. Okegbe, E.P. Murchison, A. Nagy, G.J. Hannon, S.E. Millar**. Departments of Dermatology and cell and Developmental Biology, University of Pennsylvania School of Medicine, Philadelphia PA 19104, USA; Cold Spring Harbor Laboratory, Cold Spring Harbor, NY 11724; Mount Sinai Hospital, Toronto, Ontario, Canada M5G 1X5
297	B224	Hedgehog-responding stem cells regenerate the anagen hair follicle. **I. Brownell, A. Patel, A.L. Joyner**. Dev. Bio. Prog., Memorial Sloan-Kettering Cancer Center, New York, NY.; Dermatology Service, Memorial Sloan-Kettering Cancer Center, New York, NY, USA
298	B225	The dermal papilla regulates the activity of pluri-potent follicular stem cells and the differentiation of their progeny to direct morphogenesis and regeneration of the hair. **B.A. Morgan, D. Enshell-Seijffers**. Cutaneous Biology Research Center, Harvard Medical School and Massachusetts General Hospital, Charlestown, MA 02129, USA
299	B226	Pax6 is required for neuronal progenitor cell proliferation during cone cell regeneration. **R. Thummel, J.M. Enright, S.C. Kassen, J.E. Montgomery, D.R. Hyde**. Department of Biological Sciences, University of Notre Dame, Notre Dame, IN 46556, USA
300	B227	Live cell imaging of the zebrafish dermomyotome. **B. Dobbs-McAuliffe, J. Montgomery, D. Hyde, S. Devoto**. Biomolecular Science Department, Central Connecticut State University, Ct.; Department of Biological Science, University of Notre Dame, In.; Biology Department, Wesleyan University, CT, USA
301	B228	Culture of primary myogenic cells derived from adult muscle and electric organ of the gymnotiform S. macrurus. **E. Archer, N. Escobedo, H. Kim, J. Gabillard, G.A. Unguez**. Department Biology, New Mexico State University, Las Cruces, NM; Institut National de la Recherche Agronomique, INRA-SCRIBE, Rennes, France
302	B229	Identifying the precursor zone of muscle satellite cells in *Xenopus laevis* embryos. **Y. Chen, J. Slack**. Stem cell Institute, University of Minnesota, Minneapolis, Minnesota, USA
303	B230	Requirement for Wnt and FGF signaling in *Xenopus* tadpole tail regeneration. **G. Lin, J. Slack**. Stem Cell Institute, University of Minnesota, 2001 6th Street SE, Minneapolis, MN 55455, USA
304	B231	Identification and Gene Expression Analysis of Successfully Regenerating CNS Neurons in the Hindbrain of the *Xenopus laevis* Tadpole. **K.M. Gibbs, B.G. Szaro**. Department of Biological Sciences, State University of New York, Albany, NY, USA
305	B232	Meningeal Organization and Injury Response in Amphibian Spinal Cord Regeneration. **D.A. Sarria, H.V. Nguyen, M.W. Egar, E.A. Chernoff**. Department of Biol., Indiana University - Purdue University Indianapolis, IN, USA
306	B233	Gene expression of axolotl limb regeneration mutant short toes. **K. Sato, E.A. Chernoff**. Indiana University Center for Regenerative Biology and Medicine, Department of Biology, Indiana University-Purdue University Indianapolis, USA

307 B234 Expression of Matrix Metalloproteinases (MMPs) during Axolotl Limb Regeneration. **N. Santosh, N. Al-Shibani, N. Labban, N. Rao, B. Li, L.J. Windsor, F. Song, D. Stocum**. Department of Oral Biology, Indiana University School of Dentistry, Indianapolis, IN; Department of Biology, Indiana University School of Science, Indianapolis, IN, USA

308 B235 Functional Genomics of Planarian Regeneration. **J.M. Stary, P.A. Newmark**. Department of Cell and Developmental Biology, Neuroscience Program, University of Illinois, Urbana, IL, USA

309 B236 Intestinal renewal and regeneration in the planarian Schmidtea mediterranea. **D.J. Forsthoefel, D.J. Escobar, J.M. Stary, P.A. Newmark**. Department of Cell and Developmental Biology; Neuroscience Program, University of Illinois at Urbana-Champaign, Urbana, IL, USA

310 B237 RNAi-based analysis of flatworm stem cell and germ line genes. **D. Pfister, K. De Mulder, G. Kuales, K. Sekii, P. Ladurner**. Institute of Zoology, University of Innsbruck, Austria; Department of Biology, University of Ghent, Belgium; Evolutionary Biology, Zoological Institute, University of Basel, Switzerland

Molecular Medicine and Development

311 B238 Mesenchymal b-catenin regulates Tbx1 expression and causes DiGeorge-like phenotypes. **S. Huh, D.M. Ornitz**. Department of Dev. Biol. Washington University Sch. of Med. St Louis, MO, USA

312 B239 The effect of embryo biopsy on gene expression and development in the preimplantation mouse embryo. **F.E. Duncan, P. Stein, R.M. Schultz**. University of Pennsylvania, Biology Department, Philadelphia, PA, USA

313 B240 Role of MESD in WNT Signaling and Lipoprotein Metabolism. **J.K. Chang, J. Hsieh, B.C. Holdener**. Department of Biochem. and Cell Biology, Stony Brook University, Stony Brook, NY 11794-5215, USA

314 B241 A Zebrafish Genetic Model of Spinal Muscular Atrophy and Functional Analysis of the Smn-Binding Protein, Gemin2. **M.L. McWhorter, K. Boon, S. Xiao, J. Mullenberg, T. Donn, C. Moens, C.E. Beattie**. Biology Department, Wittenberg University, Springfield, OH, USA; Center for Molecular Neurobiology, Department of Neuroscience, The Ohio State University, Columbus, OH, USA; Howard Hughes Medical Institute, Division of Basic Science, Fred Hutchinson Cancer Research Center, USA

315 B242 Discovery and Characterization of Novel Synuclein Genes in Zebrafish. **Z. Sun, A.D. Gitler**. Department of Cell and Developmental Biology, University of Pennsylvania School of Medicine, Philadelphia, PA, USA

316 B243 Seeking the biochemical basis of Type III 3-methylglutaconic aciduria through zebrafish models. **W. Pei, I. Bernardini, C. Wassif, F. Porter, Y. Anikster, M. Huizing, B. Feldman**. National Institute of Health, Bethesda, MD, USA; Sheba Medical Centre, Sackle Medical School, Tel Aviv University, Tel-Hashomer, Israel

317 B244 Imaging of Intestinal Lipid Absorption and Processing in a Live Zebrafish. **J. Walters, S. Farber**. Department of Embryology, Carnegie Institution of Washington, USA

318 B245 Valproic acid, an HDAC inhibitor, disrupts primitive hematopoiesis in *Xenopus laevis*. **R. Shah, P. Klein**. School of Medicine, University of Pennsylvania, Philadelphia, PA 19104, USA

Poster Session II **Houston Hall: Hall of Flags, Bodek Lounge, Class of 1949**
Viewing: Mon, July 28, 12:30–2 PM, 8–11 PM; Tue, July 29, 12:30–2 PM
Author presentation: Mon, July 28
Odd board numbers — 8–9:30 PM
Even board numbers — 9:30–11 PM
Abstract Program Number in Italics
B#=Poster Board NumbersFunctional Genomics

Poster Session II themes: ***Functional Genomics, Gene Regulation, Early Embryo Patterning, Patterning and Transcription Factors, Organogenesis, Late Abstracts***

Functional Genomics

319 B1 Computational analysis of shape characteristics of gene expression patterns in the embryo. **J. Christiansen, P. Stevenson, S. Venkataraman, L. Richardson, Y. Yang, N. Burton, D. Davidson, R. Baldock**. MRC Human Genetics Unit, Edinburgh, UK

320 B2 The Gene Expression Database (GXD): A Resource for Developmental Biologists. **C.M. Smith, J.H. Finger, T.F. Hayamizu, I.J. McCright, J.T. Eppig, J.A. Kadin, J.E. Richardson, M. Ringwald**. Mouse Genome Informatics, The Jackson Laboratory, Bar Harbor, ME, USA

321 B3 Homeodomain Proteins in Mice and Plants: What We Know and What We Don't. **T.Z. Berardini, D.P. Hill, S.Y. Rhee, J.A. Blake**. The *Arabidopsis* Information Resource, Carnegie Institution for Science, Stanford, CA, USA; The Gene Ontology Consortium, Planet Earth; Mouse Genome Informatics, The Jackson Laboratory, Bar Harbor, ME, USA

Gene Regulation

322 B4 Toward identification of the factors which turn on the master switch LEAFY for flower formation. **A. Yamaguchi, D. Wagner**. Department of Biol. University of Pennsylvania, Philadelphia, PA, USA

323 B5 LMI2, a MYB transcription factor involved in the vegetative to reproductive transition in *Arabidopsis thaliana*. **J. Pastore, N. Chavdaroff, D. Wagner**. Department of Biology, University of Pennsylvania, Philadelphia, PA, USA

324 B6 *Arabidopsis* ACTIN DEPOLYMERIZING FACTOR5 functions in multicellular development and is a novel repressor of the CBF cold response transcription factors. **D.R. Ruzicka, M.K. Kandasamy, E.C. McKinney, R.B. Meagher**. Department of Genetics, University of Georgia, Athens, GA, USA

325	B7	An analysis of aminopeptidase N genes in the sea urchin genome. **E. Ingersoll**. Department of Biology, Pennsylvania State Abintgon, Abington, PA, USA
326	B8	Quantitative RT-PCR Analysis of Dll-B misexpression in the ascidian chordate Ciona intestinalis. **M.D. Blanchette, F.W. Smith, M.A. Zompa, S.Q. Irvine**. Department of Biological Sciences, University of Rhode Island, Kingston RI, USA; Current address: Department of Ecol. and Evol. Bio., University of Connecticut, Storrs CT, USA
327	B9	Regulators affecting miRNA function in the worm heterochronic pathway. **B. Vadla, K. Kemper, E.G. Moss**. Department of Mol. Biol. UMDNJ, Stratford, NJ, USA
328	B10	HIM-8 and ZIM zinc-finger proteins globally affect transcription factor activity. **K. Zhou, H. Sun, W. Hanna-Rose**. Department of Biochem. and Mol. Biol. Pennsylvania State University, University Park, PA, USA
329	B11	SMA-9/Schnurri function and its target genes. **J. Yin, L. Yu, C. Savage-Dunn**. Biology Department, Queens College at CUNY, Flushing, NY, USA
330	B12	Regulation of collagen gene expression by the DBL-1/TGF-ß signaling pathway. **E. Yzeiraj, J. Yin, C. Savage-Dunn**. Department of Biology, Queens College CUNY, Flushing, NY, USA
331	B13	Discovery and functional analysis of shared regulatory elements in neuroblast enhancers. **T. Brody, A. Kuzin, M. Kundu, J. Ross, W. Odenwald**. Neural Cell-Fate Determinants Section, NINDS, NIH, Bethesda MD, USA
332	B14	SASsy and Faithful Tools to Monitor Signal Transduction During Differentiation. **N. Mullapudi, R. Lin, K. Shelton, P. Serup, R. Mcdonald, A. Grappin-Botton, M. Magnuson, K. Zaret**. Fox Chase Cancer Center, Philadelphia, PA USA; Vanderbilt University, Nashville, TN USA; Hagedorn Research Institute Denmark; University of Texas Southwestern, Dallas, TX USA; ISREC, Epalinges Switzerland
333	B15	Identifying Tissue Specific Alternative Splicing Events in *Drosophila*. **N. Sirohi, T. Rudolph, A. Nagengast**. Department of Biology, Widener University, Chester, PA; Department of Biochemistry, Widener University, Chester, PA; Department of Chemistry, Widener University, Chester, PA, USA
334	B16	Identification of alternative splicing in genes that determine sexual dimorphism in Stiphra sp. **M. Miller, S. Madigosky, I. Vatnick, A. Nagengast**. Department of Biology; Department of Biochemistry; Department of Chemistry, Widener University, Chester, PA, USA
335	B17	D-Pax2 regulates Crystallin in the developing *Drosophila* eye. **J. Kavaler, K. Dziedzic**. Department of Biol., Colby College, Waterville, ME, USA
336	B18	The novel transcriptional co-repressor ashwin modulates beta-catenin dependent transcription during early X*enopus* development. **C. Lou, T.B. Alexander, M.C. Barton, Y. Chu, A.K. Sater**. Department of Biology and Biochemistry, University of Houston, Houston, TX; Department of Biochemistry and Molecular Biology, M.D. Anderson Cancer Center, Houston, TX; Stowers Institute, Kansas City, MO, USA
337	B19	Molecular mechanisms regulating the transcription of an organizer-specific gene: chordin. **Y. Zhang, M. Sheets**. Department of biomolecular chemistry, University of Wisconsin-Madiosn, Madison, WI, USA
338	B20	hnRNP K is Required for Axon Outgrowth and Neurofilament Protein Synthesis in *Xenopus*. **B.G. Szaro, Y. Liu**. Biology Department, State University of New York, Albany, NY, USA
339	B21	Identifying Regulatory Elements of the Transcription Factor Tbx5 That Function During Heart Development. **E. Paden, F. Conlon, K. Koshiba-Takeuchi, B. Kaynak, B. Bruneau**. Carolina Cardiovascular Biology Center; UNC Department of Biology; UNC Department of Genetics; Gladstone Institute of Cardiovascular Disease; Department of Pediatrics UCSF, USA
340	B22	Conserved gap43 regulatory regions regulating developmental and regenerative gene expression. **B.W. Kusik, D.R. Hammond, A.J. Udvadia**. Department of Biological Sciences, UW- Milwaukee, Milwaukee, WI, USA; Great Lates WATER Institute, UW-Milwaukee, Milwaukee, WI, USA
341	B23	The transcriptional repressor REST regulates Sonic Hedgehog signaling during zebrafish development. **K.P. Gates, L. Mentzer, H.I. Sirotkin**. Department of Neurobiology and Behavior, Stony Brook University, NY, USA
342	B24	Repression of P53 downstream of dual specificity phosphatase 4 is essential for late endoderm specification in early zebrafish development. **M. Snir, J. Brown, B. Feldman**. Medical Genetics Branch, National Human Genome Research Institute, National Institutes of Health, Bethesda, MD, USA
343	B25	Trap230 and Neural Crest Development. **C.E. Haldin, C. LaBonne**. Biochem, Mol. Biol. and Cell Biol. Northwestern University, Evanston, IL, USA
344	B26	Optimization of the Gal4-UAS system and generation of a versatile collection of UAS-reporters for zebrafish. **C.M. Akitake, M.G. Goll, J. Rhee, M.J. Parsons, S.D. Leach, M.E. Halpern**. Department of Embryology, Carnegie Institution, Baltimore, MD, USA; Department of Surgery, Johns Hopkins Medical Institutions, Baltimore, MD, USA
345	B27	Paternal allele-specific methylation at Rasgrf1 is present in monoalleleic and biallelic tissues. **T.L. Davis, L. Dockery, R. Horton, C. Harview, N. Khaselev**. Biology Department, Bryn Mawr College, Bryn Mawr PA 19010, USA
346	B28	Maternal effects of CTCF, a multifunctional epigenetic regulator. **L. Wan, H. Pan, Y. Cheng, J. Ma, A. Fedoriw, V. Lobanenkov, K.E. Latham, R.M. Schultz, M.S. Bartolomei**. Department of Cell and Developmental Biology, University of Pennsylvania School of Medicine, Philadelphia, PA 19104; Department of Biology, University of Pennsylvania, Philadelphia, PA 19104; The Fels Institute for Cancer Research and Molecular Biology, USA
347	B29	Regulation of Tcf3 repressor activity in mouse embryonic stem cells. **L. Pereira, F. Yi, J. Hoffman, B. Merrill**. Department of Biochemistry and Molecular Genetics. University of Illinois at Chicago, IL, USA

348 B30 Wrestling with melanocyte development. **P. Lee, K.M. Taylor, C. LaBonne**. Department of Biochemistry, Molecular Biology, and Cellular Biology, Northwestern Universty, IL, USA

349 B31 Transcriptional regulation of the FoxO1 gene during mouse development. **B. Villarejo Balcells, P. Rigby, J.J. Carvajal**. The Institute of Cancer Research, Section of Gene Function and Regulation, Chester Beatty Laboratories, London, SW3 6JB, England, UK

350 B32 Foxn1 is a regulatory target of Hoxc13 in ectodermal development and dysplasia. **C.S. Potter, N.D. Pruett, M.J. Kern, A.R. Godwin, J. P. Sundberg, A. Awgulewitsch**. Department of Medicine, Medical University of South Carolina, Charleston, SC, USA.; Department of Cell Biology and Anatomy, Medical University of South Carolina, Charleston, SC, USA.; Department of Molecular and Integrative Physiology, University of Kansas Medical Center, USA

351 B33 An in vivo model of CELF-mediated alternative splicing regulation in skeletal muscle. **D.S. Berger, A.N. Ladd**. Department of Cell Biology, Lerner Research Institute, Cleveland Clinic, Cleveland, Ohio, USA

352 B34 Endothelial Responsiveness of Ptf1a and Other Genes in Liver and Dorsal Pancreas Progenitors. **D.A. Freedman-Cass, K.S. Zaret**. Cell and Developmental Biology Program, Fox Chase Cancer Center, Philadelphia PA, 19111, USA

353 B35 Nkx2.2 Transcriptional Targets Important for Islet Differentiation. **K.R. Anderson, L. Sussel**. Department of Biochem., UCHSC, Aurora, CO; Department of Gen. and Dev., Columbia University, NY, NY, USA

354 B36 Identification and characterization of novel Fgf17 enhancers active in the rostral forebrain signaling center. **R.V. Hoch, A. Visel, L.A. Pennacchio, J.L.R. Rubenstein**. Department of Psychiatry, UCSF, San Francisco, CA; Lawrence Berkeley National Laboratory, Berkeley, CA

355 B37 The role of Slug in Neural Crest. **S.M. Salvador, C. LaBonne**. BMBCB, Northwestern University, Evanston, IL, USA

356 B38 A Regulatory Network to Segregate the Identity of Neuronal Subtypes. **S. Lee, B. Lee, K. Joshi, S.L. Pfaff, J.W. Lee, S. Lee**. Departments. Molecular Cellular Biology; Molecular Human Genetics; Medicine-Div. Diabetes, Endocrinology and Metabolism; Neuroscience, The Huffington Center on Aging, Program in Developmental Biology, Baylor College of Medicine, Houston, Texas, USA; Gene Expression

357 B39 MIR-124 antagonizes the anti-neural rest/scp1 pathway during embryonic development. **J. Visvanathan, S. Lee, B. Lee, S. Lee**. Departments of Molecular and Human Genetics; Molecular and Cellular Biology

358 B40 Prrxl1 expression is upregulated upon differentiation in neuronal cells. **F.A. Monteiro, S. Rebelo, C. Reguenga, D. Lima**. Lab. of Mol. Cell Biol., Faculty of Medicine and IBMC, Oporto University, Porto, Portugal

359 B41 Regulation of Cadherin Expression in the Neural Crest by Wnt/ß-Catenin Signaling Pathway. **A.J. Chalpe, A.F. Paulson**. Department of Biology, University of South Dakota, Vermillion, SD, USA

B42 Withdrawn

Early Embryo Patterning

361 B43 The PAM-1 aminopeptidase regulates centrosome dynamics to ensure anterior-posterior axis specification in one-cell *C. elegans* embryos. **R. Lyczak, P. Greene, S. Marshall**. Department of Biology, Ursinus College, Collegeville PA, USA

362 B44 Asymmetric localization and functional role of the putative non-coding RNA loLR5. **J. Rabinowitz, J. Lambert**. University of Rochester, USA

363 B45 RNA segregation and embryonic patterning in a mollusc embryo. **J. Lambert**. Biology, University of Rochester, Rochester NY, USA

364 B46 Dissecting RNA localisation pathways in neuroblasts and neurons in the *Drosophila* embryo. **C. Molenaar, D. Ish-Horowicz**. Developmental Genetics Laboratory, London Research Institute, Cancer Research UK, London, UK

365 B47 The role of VegT in the pre-MBT development of *Xenopus laevis*. **J. Skirkanich**. Department of Cell and Developmental Biology, University of Pennsylvania, Philadelphia, PA, USA

366 B48 Serotonin signaling regulates morphogenesis of the ciliated gastrocoel roof plate (GRP) epithelium during *Xenopus* left-right axis formation. **V. Philipp, A. Schweickert, T. Beyer, T. Weber, S. Bogusch, M. Danilchik, M. Blum**. University of Hohenheim, Institute of Zoology, 70593 Stuttgart, Germany; Department of Integrative Biosciences, OHSU, Portland, OR 97239, USA

367 B49 Regulation of early *Xenopus* development by the Polycomb group protein EED. **C. Chang, M. Cox, J. Fletcher**. Department of Cell Biology, University of Alabama at Birmingham, Birmingham, AL 35294, USA

368 B50 The Interaction of the Wnt and Nodal Pathways during Organizer Formation in *Xenopus laevis*. **C.D. Reid, D.S. Kessler**. Department of Cell and Dev Bio, University of Pennsylvania School of Medicine, Philadelphia, PA, USA

369 B51 Characterization of a novel regulator of canonical Wnt signaling. **Y. Komiya, A. Sato, R. Habas**. Department of Biochem., Robert Wood Johnson Medical School-UMDNJ, Piscataway, NJ, USA; Department of Biochem. Graduate School of Biomed. Sci., Hiroshima University, Hiroshima, Japan

370 B52 Profilin1 and Profilin2 are non-redundant effectors for Daam1 in non-canonical Wnt signaling and have distinct functions in vertebrate gatrulation. **D.K. Khadka, W. Liu, R. Habas**. Department of Biochemistry, UMDNJ-RWJMS, Piscataway, NJ, USA

371 B53 zic genes act directly downstream of FGF signalling and BMP inhibition to promote a pre-neural state in *Xenopus*. **L. Marchal, G. Luxardi, L. Kodjabachian**. IBDML, Marseille, France

372 B54 An aquaporin gene as a direct target of the Zic1 transcription factor. **E.J. Cornish, S.M. Hassan, C. Merzdorf**. Department of Cell Biology and Neuroscience, Montana State University, Bozeman, MT, USA

373	B55	New Roles for Voltage-gated Calcium Channel ß Subunits in Zebrafish Development. **A.M. Ebert, K.E. Gately, K.A. Foltyn, W.A. Horne, D.M. Garrity**. Department of Biology, Colrado State University, Ft Collins, CO; College of Veterinary Medicine, Cornell University, Ithaca, NY
374	B56	Fluid dynamics in zebrafish Kupffer's vesicle. **N. Okabe, R.D. Burdine**. Department of Mol. Bio., Princeton University Princeton, NJ, USA
375	B57	Two BMP ligands induce association of two nonredundant BMP Type I receptors to pattern the zebrafish dorsoventral axis. **S.C. Little, M.C. Mullins**. Department of Cell and Dev. Biol., University of Pennsylvania, Philadelphia, PA, USA
376	B58	BMP signaling progressively patterns the dorsoventral axis from anterior to posterior. **J.A. Tucker, K.A. Mintzer, M.C. Mullins**. University of Pennsylvania, Philadelphia, PA; NYU School of Medicine, New York, NY, USA
377	B59	Tailbud-derived Bmp4 drives proliferation and inhibits maturation of zebrafish chordamesoderm. **R. Esterberg, J. Delalande, A. Fritz**. Biology Department, Emory University, Atlanta, GA, USA
378	B60	Fgfs in Zebrafish Left–Right Asymmetry. **M.R. Rebagliati, N. Nedza, T. Eggleston, G. Molina, M. Tsang**. Department of Anatomy and Cell Biology, University of Iowa, Iowa City, IA, USA; Stowers Institute for Medical Research, Kansas City, MO, USA; Department of Mol. Gen. and Biochem., U of Pittsburgh Sch. of Med.,Pittsburgh, PA, USA
379	B61	Regulation of canonical Wnt signaling by Brachury is essential for posterior mesoderm formation. **B.L. Martin, D. Kimelman**. Department of Biochemistry, University of Washington, Seattle, WA, USA
380	B62	FOXD3 regulation of mesoderm induction in the zebrafish embryo. **L.L. Chang, D.S. Kessler**. Department of Cell and Developmental Biology, University of Pennsylvania School of Medicine, Philadelphia, PA, USA
381	B63	Systematic modeling analysis of one-eyed pinhead involved Nodal signaling in zebrafish development. **B. Xu, R.D. Burdine**. Department of Molecular Biology, Princeton University, Princeton, NJ, USA
382	B64	Investigating the role of schnitter during zebrafish brain development. **S. Lin, R. Burdine**. Department of Mol. Biol., Princeton University, Princeton, NJ, USA
383	B65	Moved to Poster Session I, Board # 73.
384	B66	Early neurotransmitter phenotype specification in *Xenopus laevis*. **M.R. Wester, K. Fisher, N. Golub, M.S. Saha**. Department of Biology, College of William and Mary, Williamsburg, VA, USA
385	B67	Primary Heart Forming Region of Early Avian Embryo Revealed By Real-Time Positional Fate Map. **C. Cui, C.D. Little, B.J. Rongish**. Department of Anatomy and Cell Biology, University of Kansas Medical Center, Kansas City, KS, USA
386	B68	A Unifying Concept of Heart Tube Formation for Avians and Mammals. **R. Abu-Issa, M.L. Kirby**. Department of Natural Sciences, University of Michigan-Dearborn, Dearborn MI 48128; Departments of Pediatrics, Duke University, Durham NC 27510
387	B69	The function of the mammalian Pumilio gene, Pum1, in early embryonic development of mice. **H. Siemen, E. Xu, O. Brüstle, R.A. Reijo Pera**. Inst. for Stem Cell Biology and Regenerative Medicine, Department of OBGYN, Stanford University School of Medicine, Stanford, CA; Inst. of Reconstructive Neurobiology, University of Bonn Medical Center, Bonn, Germany; Department of Obstetrics and Gynecology
388	B70	Tcf3 Regulation of Pluripotency for Lineage Commitment during Gastrulation. **J.A. Hoffman, B.J. Merrill**. Department of Biochem. and Mol. Gen., UIC, Chicago, IL 60607, USA
389	B71	Role of paracrine Furin activity during gastrulation. D. Mesnard, M. Donnison, **P.L. Pfeffer, D.B. Constam**. EPFL-ISREC, Epalinges, Switzerland; AgResearch, Hamilton, New Zealand
390	B72	Role of rac1 in the regulation of axis specification and cell migration during early mouse development. **M.M. Isabelle, A.V. Kathryn**. Dev. Biol. Program, Sloan-Kettering Institute, NY, NY, USA
391	B73	The role of PTEN in anterior–posterior (ap) axis formation in the mouse embryo. **J.E. Bloomekatz, A. Rakeman, H. Alcorn, K.V. Anderson**. Weill-Cornell Graduate School; Sloan-Kettering Institute, USA
392	B74	Anterior Axis Duplication in Mouse Embryos caused by Mutation in Porcn. **S. Biechele, B.J. Cox, O.J. Tamplin, M. Lu, J. Rossant**. Program in Developmental and Stem Cell Biology, SickKids Hospital, Toronto, Canada; Department of Mol. Genetics, University of Toronto, Canada
393	B75	Redundant function of Wnt5a and Wnt11 in somitogenesis and anteroposterior axis elongation. **H. Song, A. Kispert, Y. Yang**. GDRB, National Human Genome Research Institute, Bethesda, MD, USA; Institute For Molecular Biology, Medizinische Hochschule Hannover, 30625 Hannover, Germany
394	B76	BMP signaling through ACVR1 is crucial for establishment of the left–right asymmetry via proper formation of node cilia in the mouse. **Y. Mishina, V. Kaartinen, Y. Komatsu**. Lab. of Reproductive and Developmental Tox., Natl. Inst. Environmental Health Sci., NIH, RTP, NC, USA; Department of Pathology, Childrens Hosp. Los Angeles Res. Inst. and Keck School of Medicine of the University of Southern California, Los Angeles, CA, USA
395	B77	Endoderm function in Left–Right development in mice. **R.S. Saund, Y. Kanai, M. Kanai, Y. Saijoh**. Department of Neurobiol and Anat, University of Utah, Salt Lake City, UT; Tokyo University, Japan; Jikei University, Japan
396	B78	Endoderm cell signaling networks during liver and pancreas specification. **E. Wandzioch, K.S. Zaret**. Cell and Developmental Biology Program, Fox Chase Cancer Center, Philadelphia, PA, USA
397	B79	Notch Pathway Mutants Display Craniofacial Birth Defects and Disrupt Expression of the Pharyngeal Arch Gene Barx1. **W. Sewell, S. Stevens, D. Gonzalez, S. Pratt, S. Dunwoodie, K. Loomes, K. Kusumi**. School of Life Sciences, Arizona State University, Tempe AZ; Children's Hospital of Philadelphia, PA; University of Pennsylvania School of Medicine, Philadelphia, PA; Victor Chang Cardiac Res Inst, Sydney and University of New South Wales, Kensington, Australia; UA College of Medicine-Phoenix in partnership with ASU, USA

398	B80	O-Fucose modification is essential for patterning mesoderm in the mouse embryo. **J. Du, H. Takeuchi, C. Leonhard, M. Dlugosz, R.S. Haltiwanger, B.C. Holdener**. Department of Biochem and Cell Biol, Stony Brook University, Stony Brook, NY, USA

Patterning and Transcription Factors

399	B81	Regulatory Elements Encoded in the First Intron are Necessary for Proper Expression of the MADS-box Transcription Factors AGL6 and AGL13 in *Arabidopsis thaliana*. **S.E. Schauer, R. Baskar, P. Schlüter, J. Gheyselinck, A. Bolaños, M.D. Curtis, U. Grossniklaus**. Institute of Plant Biology, University of Zürich, Zolliekerstrasse 107 Zürich, Switzerland CH-8008
400	B82	OsMADS1 as a transcriptional regulator of rice floral organ fate affects auxin and cytokinin signaling pathways. **S.R. Yadav, U. Vijayraghavan**. Department of Micro and Cell Biology, Indian Institute of Science, Bangalore, India
401	B83	Pattern formation in leaves via small rna mobility. **D.H. Chitwood, F.T. Nogueira, M.D. Howell, T.A. Montogmery, J.C. Carrington, M.C. Timmermans**. Watson School of Biological Sciences, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY, USA; Cold Spring Harbor Laboratory, Cold Spring Harbor, NY, USA; Center for Genome Research and Biocomputing, Oregon State University, Corvallis, OR, USA; Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR, USA; Molecular and Cellular Biology, Oregon State University, Corvallis, OR, USA
402	B84	Early zygotic gene regulatory network for epidermis in the ascidian *C. intestinalis*. **S.Q. Irvine, M.D. Blanchette, M.A. Zompa, F.W. Smith**. Department of Biological Sciences, University of Rhode Island, Kingston, RI, USA
403	B85	The *C. elegans* tailless ortholog nhr-67 functions in uterus and tail development. **J. Schocken, E. Verghese, E. Lisco, S. Eng, M. Twardzik, V. Brown, B. Sanford, S. Bywaters, E. McCain, B. Wightman**. Biology Department, Muhlenberg College, Allentown, PA 18104, USA
404	B86	*Drosophila* CtBP causes local inhibition of Dorsal and dCBP that regulate neuroectoderm genes. **H. Aihara, M. Arcilla, S. Lianoglou, M. Stern, Y. Nibu**. Department of Cell and Dev. Biol., Weill Medical College of Cornell University, New York, NY, USA
405	B87	Dispensable function of the B' regulatory subunit of Protein Phosphatase 2A (PP2A) in *Drosophila melanogaster*. **H. Moazzen**. Department of Biol., Western Ontario University, London,ON, Canada
406	B88	Molecular fluctuations and interpreting spatial gradients, applied to Hunchback pattern formation. **A.V. Spirov, F.J. Lopes, D.M. Holloway**. Appl. Math, SUNY at Stony Brook, NY, USA; Mathematics, British Columbia Inst. of Tech., Burnaby, BC, Canada
407	B89	Nerfin-1: A novel binding partner of Scalloped. **A. Garg, H. Deng, A. Kuzin, T. Brody, A. Simmonds, W. Odenwald, J. Bell**. Department of Biological Sciences, University of Alberta, Edmonton, Alberta Canada; Neural Cell-Fate Determinants Section, National Institutes of Health, Bethesda, MD, USA; Department of Cell Biology, University of Alberta, Edmonton, Alberta, Canada
	B90	Withdrawn
409	B91	Clearing Up the Fog in Frog Embryonic Blood Development. **M.S. Mimoto, J.L. Christian**. Cell and Developmental Biology, Oregon Health and Science University, Portland, OR
410	B92	HMGA proteins in *Xenopus laevis*. **R. Vignali, S. Macrì, M. Onorati, E. Basaldella, R. Sgarra, G. Manfioletti**. Dipartimento di Biologia, Università di Pisa, Pisa, Italy; Dipartimento di Scienze della Vita, Università di Trieste, Trieste, Italy
411	B93	Assessing the effects of Ca2+ activity on transcriptional regulators of neurotransmitter phenotype. **A. Hughes, M. Wester, J. Hayes, C. Del Negro, M. Saha**. Department of Biol., College of William and Mary, Williamsburg, VA, USA; Department of Applied Sci., College of William and Mary, Williamsburg, VA, USA
412	B94	Terminal differentiation gene coexpression in GABAergic and glycinergic neurons. **D. Teasley, M. Wester, M. Saha**. Department of Biol., College of William and Mary, Williamsburg, VA, USA
413	B95	Pea3 Ets transcription factors: their role in Fibroblast Growth Factor signaling and embryogenesis. **W.A. Znosko, M. Tsang**. Department of Biological Sciences; Department of Microbiology and Molecular Genetics, University of Pittsburgh, Pittsburgh, PA 15213, USA
414	B96	The pineal complex/epiphysis is a placode, strictly specified by the combinatorial activity of the transcription factors Flh/Noto and Dlx3. **C. Houart, J. Hutt, I. Foucher, C. Houart**. MRC centre for Dev. Neuro., King's College London, Guy's Campus, London SE1 1UL, UK; Institut Pasteur, Paris, France
415	B97	Retinoic acid signaling plays key roles in the establishment of proximo-distal nephron segments in the zebrafish kidney. **R.A. Wingert, A.J. Davidson**. Massachusetts General Hospital, Boston, MA, USA
416	B98	Embryonic requirement for erbb signaling during zebrafish adult pigment pattern development. **E. Budi, L. Patterson, E. McDonald, D.M. Parichy**. MCB Department, University of Washington; Bio Department, University of Washington Seattle, WA, USA
417	B99	Isolation of a novel recessive maternal-effect dorsalizing mutation that expands the organizer. **L.D. Kapp, E. Abrams, F. Marlow, T. Gupta, M.C. Mullins**. Department of Cell and Developmental Biology, University of Pennsylvania, Philadelphia, PA, USA
418	B100	Beta-cell number is limited by the Cdx4 transcription factor. **M.D. Kinkel, V.E. Prince**. Department of Organismal Biol. and Anat., University of Chicago, Chicago, IL, USA
419	B101	The role of two Tbx paralogs in otic placode development and otolith formation. **A. Fritz, R. Esterberg, S.G. Setty, C. Snelson, J. Ngai, J.T. Gamse**. Department of Biology, Emory University, Atlanta, GA; Department of Biological Sciences, Vanderbilt University, Nashville, TN; Department of Molecular and Cell Biology, University of California, Berkeley, CA, USA
420	B102	The Forkhead domain transcription factor Foxj1 is the master regulator of the motile ciliogenic program. **S. Roy, H. Habacher, X. Yu**. Institute of Molecular and Cell Biology, Proteos, 61 Biopolis Drive, Singapore 138673

421 B103 FOXA2 controls the identity and morphology of cells within the medial region of midbrain floor plate. **R. Bayly, S. Agarwala**. Institute for Cellular and Molecular Biology, University of Texas at Austin, Austin, TX USA; Section of Neurobiology, University of Texas at Austin, Austin, TX, USA

422 B104 A transition in Sox2 gene regulation distinguishes the epiblastic and anterior neural plate states. **M. Iwafuchi, T. Takemoto, M. Uchikawa, Y. Kamachi, H. Kondoh**. Department of Dev.Biol., Osaka University, Suita, Osaka, Japan

423 B105 Detailed analysis of *zic1*, zic2, *zic3*, and *zic4* expression in trunk and hindbrain sections of early chick embryos. **A. McMahon, S. Muscarelli, C. Merzdorf**. Department of Cell Biology and Neuroscience, Montana State University, Bozeman, MT, USA

424 B106 Analysis of chicken paraxial mesoderm progenitor transcriptome using microarray technique. **B. Bénazéraf, S. Mathur, K. Zueckert-Gaudenz, G. Hattem, J. Sachintha, T. Olivier, H. Jeff, P. Olivier**. Stowers Institute for Medical Research, 1000 East 50th Street, Kansas City, Missouri 64110, USA.; Howard Hughes Medical Institute, Kansas City, MO 64110 USA

425 B107 Identifying Novel Targets of Ptf1a Using ChIP-on-chip Technology. **S. Scott, S.D. Leach**, MD. Department of Surgery; Department of Cell Biology, Johns Hopkins University School of Medicine, Baltimore, MD, USA

426 B108 Modular patterning of structure and function of the striatum in the forebrain by retinoid receptor signaling. **F. Liu, W. Liao, P. Chambon**. Institute of Neuroscience, National Yang-Ming University, Taipei, Taiwan; Institut de Genetique et de Biologie Moleculaire et Cellulaire, College de France, Strasbourg, France

427 B109 Gbx2 and Fgf8 are sequentially required for formation of the mid-hindbrain compartment boundary. **J. Li, A. Sunmonu, Q. Guo**. Department of Genetics and Developmental Biolgoy, University of Connecticut Health Center, Farmington, CT, USA

428 B110 Six3-promoted holoprosencephaly is caused by the absence of Shh expression in the rostral diencephalon ventral midline. **X. Geng, C. Speirs, O. Lagutin, W. Liu, L. Solnica-Krezel, G. Oliver**. Department of Genetics and Tumor Cell Biology, St. Jude Children's Research Hospital, Memphis, Tennessee 38105-2794, USA; Department of Biological Sciences, Vanderbilt University, Nashville, Tennessee 37235-1634, USA

429 B111 *Zic1* and *Zic4* are required for mammalian cerebellar patterning and growth. **M.C. Blank, I. Grinberg, V.V. Chizhikov, K.J. Millen**. Department of Mol. Genet. and Cell Biol.; Department of Hum. Genet., The University of Chicago, Chicago, IL, USA

430 B112 Genetic and functional interaction between transcription factors MEF2C and Dlx5/6 is required for craniofacial development. **P. Agarwal, M.P. Verzi, B.L. Black**. CVRI, University of California, San Francisco, CA, USA

431 B113 Functional Equivalence between Osr1 and Osr2 in Mouse Development. **Y. Gao, Y. Lan, C.E. Ovitt, R. Jiang**. Department of Biomedical Genetics, University of Rochester, Rochester, NY, USA; Center for Oral Biology, University of Rochester, Rochester, NY, USA

432 B114 The role of Dlx3 in Hair Development. **J. Hwang, T. Mehrani, S.E. Millar, M.I. Morasso**. Developmental Skin Biology Unit, NIAMS, NIH, Bethesda, MD 20892, USA; Department of Dermatology and Cell and Developmental Biology, University of Pennsylvania School of Medicine, Philadelphia, PA 19104, USA

433 B115 Molecular consequences of a frameshifted Dlx3 mutant leading to Tricho-Dento-Osseous syndrome. **O. Duverger, D. Lee, M.Q. Hassan, S.X. Chen, F. Jaisser, J.B. Lian, M.I. Morasso**. Dev Skin Biol Unit, NIAMS/NIH, Bethesda, MD, USA; UMass Medical School, Worcester, MA, USA; INSERM U772, College de France, Paris, France

434 B116 Role of T and Tbx6 in mesodermal patterning. **A.K. Wehn, D.L. Chapman**. Department of Biological Sciences, University of Pittsburgh, Pittsburgh, PA, USA

435 B117 The identity and fate of Tbx4-expressing cells reveal previously unknown developmental decisions in the allantois, limb, and proctodeum. **L.A. Naiche, R. Arora, V.E. Papaioannou**. Cancer and Developmental Biology, National Cancer Institute, Frederick, MD; Department of Genetics and Development, Columbia University, New York, NY, USA

436 B118 Ash2l: A Novel Interacting Cofactor of DiGeorge Syndrome Transcription Factor Tbx1. **J.Z. Stoller, L. Huang, J.A. Epstein**. Div. of Neonatology, Children's Hosp. of Phila., University of Pennsylvania, Phila., PA, USA; Department of Cell and Dev. Biol., University of Pennsylvania, Phila., PA, USA

437 B119 Processing of Lunatic fringe protein by subtilisin/furin-like proprotein convertases contributes to its short intracellular half-life. **E.T. Shifley, S.E. Cole**. Department of Molecular Genetics, The Ohio State University, Columbus, OH, USA

438 B120 Evidence for Hox-Specified Positional Identities in Adult Vasculature. **N.D. Pruett, R. Visconti, D. Scholz A. Awgulewitsch**. Department of Medicine, MUSC, Charleston, SC, USA; Department of Cell Biology, MUSC, Charleston, SC, USA

439 B121 Only posterior interdigit provides positional information to its anterior PFR to specify each digit identity. **T. Suzuki, S.M. Hasso, T. Ogura, J.F. Fallon**. Department of Anatomy, University of Wisconsin, Madison, WI, USA; Department of Developmental Neurobiology, IDAC, Tohoku University, Sendai, Japan

440 B122 Sonic Hedgehog signaling in the Apical Ectodermal Ridge is essential for proper patterning of the vertebrate limb. **C.M. Bouldin, W.J. Scott, B.D. Harfe**. Department of Molecular Genetics and Microbiology, Genetics Institute, University of Florida, Gainesville, FL 32610; Division of Developmental Biology, Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio 45229, USA

441 B123 Dual, separable roles of Sonic hedgehog in limb bud patterning and expansion. **J. Zhu, E. Nakamura, M. Nguyen, X. Bao, S. Mackem**. Laboratory of Pathology, NCI, NIH, Bethesda, MD, USA

442 B124 Regulation of Differential Gene Expression in the Neural Tube by the Morphogen Sonic Hedgehog. **N. Balaskas, K. Hill, V. Ribes, J. Briscoe**. Developmental Neurobiology, National Institute for Medical Research, London, NW7 1AA, UK; These authors contibute equal to this work; Author for correspondance

Organogenesis

443 B125 An enu screen reveals novel genes required for mammalian forebrain development. **R.W. Stottmann, Y. Yun, D. Beier**. Div. of Genetics, Brigham and Women's Hospital, Harvard Medical School, Boston, MA,. USA

444 B126 Evidence for cell sorting in the pituitary gland. **S.W. Davis, A.H. Mortensen, M.A. Potok, S.A. Camper**. Department of Human Genetics, University of Michigan, Ann Arbor, MI, USA

445 B127 Reassessing BMP's Role In Early Development Of Cranial Placodes. **B.B. Riley, H. Kwon, N. Bhat, R.A. Cornell**. Biology Department, Texas A&M University, College Station, TX 77843; Department of Anatomy and Cell Biology, University of Iowa, Iowa City, IA 52242, USA

446 B128 FGF signalling is involved in the induction and morphogenesis of the inner ear. **R.K. Ladher, S. Freter, X. Sai**. Lab for Sensory Development, RIKEN CDB, 2-2-3 Minatojima-Minamimachi, Chuo-ku, Kobe, Japan

447 B129 Hindbrain Rhombomere 4 Induces Authentic Inner Ear Vesicles in the Chick. **Y. Li, S.R. Hilfer**. Center for Regenerative Medicine and Skeletal Development, MC3705, Department of Reconstructive Sciences, University of Connecticut Health Center, School of Dental Medicine, Farmington, CT, USA; Department of Biology, Temple University, Philadelphia, PA, USA

448 B130 Inner ear auditory progenitors are directly dependent on Hedgehog Signaling. **A.S. Brown, M. Riccomagno, D.J. Epstein**. Department of Genetics, University Pennsylvania School of Medicine, USA

449 B131 The Role of Ldb Complexes in Lens Development. **T. Cohen, H. Westphal**. LMGD, NICHD, NIH, Betheda, MD, USA

450 B132 Hoxa2 Acts as a Repressor in the Developing Murine Palate. **T.M. Smith, A.J. Nazarali**. Laboratory of Molecular Biology, College of Pharmacy and Nutrition, University of Saskatchewan, SK, Canada

451 B133 Tbx-associated transcriptional corepressor, Ripply3, plays essential roles in pharyngeal development. **T. Okubo, A. Kawamura, J. Takahashi, A. Ohbayashi, S. Takada**. Okazaki Institute for Integrative Bioscience, NINS, Japan

452 B134 Antagonistic Functions of Jagged-Notch and Edn1 Signaling Control Dorsal–Ventral Patterning of the Vertebrate Face. **C. Gage, E. Zuniga, F. Stellabotte**. Center for Stem Cell and Regenerative Medicine, University of Southern California, Los Angeles, CA, USA

453 B135 A mouse model of Costello syndrome through tissue-specific activation of Kras. **A. Mukhopadhyay, S.R. Krishnaswami, B.D. Yu**. Division of Dermatology, Department of Medicine, University of California, San Diego, CA 92093, USA

454 B136 The LIM-domain binding protein Ldb1 is required for proper endocardial cushion formation during heart development in Mus musculus. **M.D. Phillips, D. Bogen, H. Westphal**. Laboratory of Mammalian Genes and Development, PGD, NICHD, NIH, Bethesda, MD, USA

455 B137 Monocilia in the embryonic mouse heart imply a direct role for cilia in cardiac morphogenesis. **M. Brueckner, J. Slough, L. Cooney**. Department of Pediatrics, Yale University School of Medicine, New Haven, CT, USA; Department of Genetics, Yale University School of Medicine, New Haven, CT, USA

456 B138 Investigating bmp-signaling functions in second heart field. **J. Wang, L. Ma, M.B. Claudio, J.F. Martin**. Institute of Biosciences and Technology, Texas A&M University, Houston, TX, USA

457 B139 Nodal dependent and independent axis conversions during asymmetric morphogenesis of the zebrafish heart. **K. Baker, N.G. Holtzman, R.D. Burdine**. Department of Mol. Biol., Princeton University, Princeton, NJ, USA; Biol. Department, Queens College, City University of New York, Flushing, NY, USA

458 B140 3-O-sulfotransferase is required for cardiac development and physiology in zebrafish. **S.C. Samson, T. Ferrer, M. Tristani-Firouzi, H. Yost**. Neurobiology and Anatomy, University of Utah, Salt Lake City, UT; Pediatrics, University of Utah, Salt Lake City, UT

459 B141 Channel Independent functions of L-Type Calcium Channel Beta-2 Subunit. Y. Chernyavskaya, **A. Ebert, S. Bisbee, D. Garrity**. Department of Biology, Colorado State University, Fort Collins, CO, USA

460 B142 Tbx5-Mediated ß2 CaMK-II Expression is Required for Heart Looping and Pectoral Fin Development. **S.C. Rothschild, C.A. Easley, L. Francescatto, J.A. Lister, D.M. Garrity, R.M. Tombes**. Department Biology, Virginia Commonwealth University (VCU), Richmond, VA; Department Biochemistry, VCU, Richmond, VA; Department Human Genetics, VCU, Richmond, VA; Department Biology, Colorado State University, Fort Collins, CO, USA

461 B143 Hedgehog signaling plays a cell-autonomous role in maximizing cardiac developmental potential. **D. Yelon, N.A. Thomas, M. Koudijs, F. Van Eeden, A.L. Joyner**. Skirball Institute, NYU School of Medicine, New York, NY, USA; University of Sheffield, Sheffield, UK; Memorial Sloan-Kettering Cancer Center, New York, NY, USA

462 B144 Expression patterns of sox9 gene during chick heart development. **T. Yamagishi, Y. Nakajima, K. Ando, M. Sakabe, H. Nakamura**. Department of Anat., Saitama Medical University, Saitama, Japan.; Department of Anat., Graduate School of Medicine, Osaka City University, Osaka, Japan

463 B145 Endothelial Deletion of PlexinD1 Results in Congenital Heart, Vascular and Skeletal Defects. **Y. Zhang, Y. Yoshida, M. Lu, J.A. Epstein**. Department of Cell and Molecular Biology, University of Pennsylvania, PA, USA; Department of Biochemistry and Molecular Biophysics,Columbia University, New York, USA

464 B146 Snail1 transcription factor in bone development and homeostasis. **C. Alvarez De Frutos, R. Dacquin, S. Vega, I. Machuca-Gayet, A. Nieto**. Instituto De Neurociencias (Csic-Umh), San Juan De Alicante, 03550, Spain; Inserm, Unite 433, Lyon, France

465 B147 Making and shaping seamless tubes. **A.S. Ghabrial**. Department of Cell and Developmental Biology, University of Pennsylvania School of Medicine, Philadelphia, PA, USA

466 B148 Expression and Functional Analysis of miRNAs in Kidney Development. **R. Agrawal, U. Tran, O. Wessely**. Department Cell Biology and Anatomy, LSUHSC, New Orleans, LA, USA

467 B149 Gata3 and its role in urogenital system development. **D. Grote, A. Souabni, X. Chi, C.E. Merkel, T.J. Carroll, F. Costantini, M. Bouchard**. McGill Cancer Centre, Department of Biochem., McGill University, Montreal, QC, Canada; IMP, University of Vienna, Vienna, Austria; Department of Gen. and Dev., Columbia University, New York, NY, USA; Department of Int. Med. and Mol. Bio., University of Texas Southwestern Med. Center, Dallas, TX, USA

468 B150 Epithelial integrity requires a signal from underlying stroma: the nephric coelomic epithelium as a novel experimental model. **T. Yoshino, D. Saito, Y. Takahashi**. Graduate School of Biological Sciences, NAIST, Nara, Japan

469 B151 Utilizing a Small Molecule Screen to Delineate Kidney Development. **N.A. Hukriede, E.D. De Groh, R. Jackson, W. Dai, B.W. Day, T.E. Smithgall**. Microbiology and Molecular Genetics, University of Pittsburgh School of Medicine; Pharmaceutical Sciences, University of Pittsburgh School of Pharmacy, Pittsburgh, PA, USA

470 B152 Transcriptional Control of Podocyte Development in *Xenopus*. **J.T. White, O. Wessely**. Department Cell Biology and Anatomy, LSUHSC, New Orleans, LA, USA

471 B153 Wnt2a/2b are required for lung specification and development through activation of canonical signaling. **A.M. Goss, Y. Tian, Z. Wang, T. Yamaguchi, E. Morrisey**. Department of Medicine, University of Pennsylvania School of Medicine, Philadelphia, PA 19104; Cancer and Developmental Biology Laboratory, NCI-Frederick, Frederick, MD 21701, USA

472 B154 Synergistic activation of canonical signaling by a subset of Wnt ligands. **M.F. Miller, E. Cohen, A.M. Goss, J. Baggs, J. Hogenesch, E.E. Morrisey**. Department of Med, University of Pennsylvania, Philadelphia, PA; Department of Cell and Dev. Bio, University of Pennsylvania, Philadelphia, PA; Department of Pharm, University of Pennsylvania, Philadelphia, PA, USA

473 B155 Examination of the roles of Nkx2.1 and Fgf10 in *Xenopus laevis* lung development. **B.A. Hyatt, D. Einerson, J. Robertson, D. Judd, B. Einerson, D.N. Cornfield**. Department of Biological Sciences, Bethel University, St. Paul, MN, USA; Department of Pediatrics, Stanford University, Palo Alto, CA, USA

474 B156 Ngn3 expression in differentiated islet cells contributes to islet cell maintenance and function. **G. Gu, S. Wang, A. Zhao, Y. Xu, Y. Dor**. Department Cell Dev. Biol, Vanderbilt Medical Center, Nashville, TN USA;. Cellular Biochemistry and Human Genetics, The Hebrew University-Hadassah Medical School, Jerusalem. Israel

475 B157 Myt1 and Ngn3 form a feed-forward expression loop to promote endocrine islet cell differentiation. **S. Wang, J. Hecksher-Sorensen, L. Rosenberg, P. Serrup, G. Gu**. Department Cell Dev. Biol, Vanderbilt Medical Center, Nashville, TN USA; Hagedorn Research Institute, Department Dev. Biol, Niels Steensens Vej 6, Gentofte, Denmark

476 B158 Thyroid hormone controls remodeling of the exocrine and endocrine pancreas during metamorphosis in *Xenopus laevis*. **S. Mukhi, D. Brown**. Department of Embryology, Carnegie Institution, Baltimore, MD 21218, USA

477 B159 Roles of Bmp, Fgf and Wnt signaling in liver formation and recovery in zebrafish embryos. **S. Donghun, D.Y. Stainier**. Department of Biochemistry and Biophysics, UCSF, San Francisco, CA, USA

478 B160 Zebrafish homologue of FKBP65 plays a role in intestinal smooth muscle differentiation. **T. Akhtar, R. Yerry, K.N. Wallace**. Department of Biology, Clarkson University, Potsdam, NY, USA

479 B161 Effect of thyroid hormone on gut development in a direct developing frog. **S. Singamsetty, R.P. Elinson**. Department of Biol Sci., Duquesne University, Pittsburgh, PA, USA

480 B162 Alpha 2-Macroglobulin regulation of axial and gut morphogenesis in *Xenopus laevis*. **L.L. Pineda Salgado, D. Kessler**. Department of Cell and Develomental Biology. University of Pennsylvania, Philadelphia, PA, USA

481 B163 Understanding the Function of Nonmuscle Myosin II-A (NM II-A) In Vivo. **A. Wang, X. Ma, S. Kawamoto, R.S. Adelstein**. LMC/NHLBI, Bethesda, MD, USA

482 B164 Coordinate regulation of organ morphogenesis in *C. elegans*. **D.S. Fay, K. Mani**. Department of Molecular Biology, University of Wyoming, USA

483 B165 A Genetic Screen to Identify Genes Necessary for *C. elegans* Pharynx Muscle Development. **P.A. Smith, M.E. Ali, E. Pahomov, A. Porter, A.R. Ferrier, P.A. Smith**. Department of Biology, Lake Forest College, Lake Forest, IL, USA

484 B166 Global Analysis of the LEAFY Transcriptional Network: Transitioning to Reproductive Development in *Arabidopsis thaliana*. **C. Winter, D. Wagner**. Department of Biology, University of Pennsylvania, USA

485 B167 The histone acetyltransferase GCN5 affects floral bud initiation and stamen development in *Arabidopsis*. **A.T. Hark, R. Cohen, J. Schocken, E.R. McCain**. Biology Department, Muhlenberg College, Allentown, PA 18104, USA

486 B168 Morphogenesis, meristems and maize: Genetic regulation of inflorescence development in plants. **P. McSteen, A. Skirpan, S. Barazesh, X. Wu, K. Phillips**. Department of Biology, Pennsylvania State University, University Park, PA, USA

487 B169 Vesicular Trafficking and Cell Expansion During Maize Leaf Development. **D. Hill, X. Ling, A. Luo, M. Tamkun, A. Sylvester**. Department of Molec. Biol, University of Wyoming, Laramie, WY; Department of Biomed. Sci., CSU, Fort Collins, CO, USA

Late Abstracts

146 B170 Imaging the epithelial-to-mesenchymal transformation of avian trunk neural crest cells. **J.D. Ahlstrom, C.A. Erickson**. Section of Molecular and Cellular Biology, UC Davis, Davis, CA, USA

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